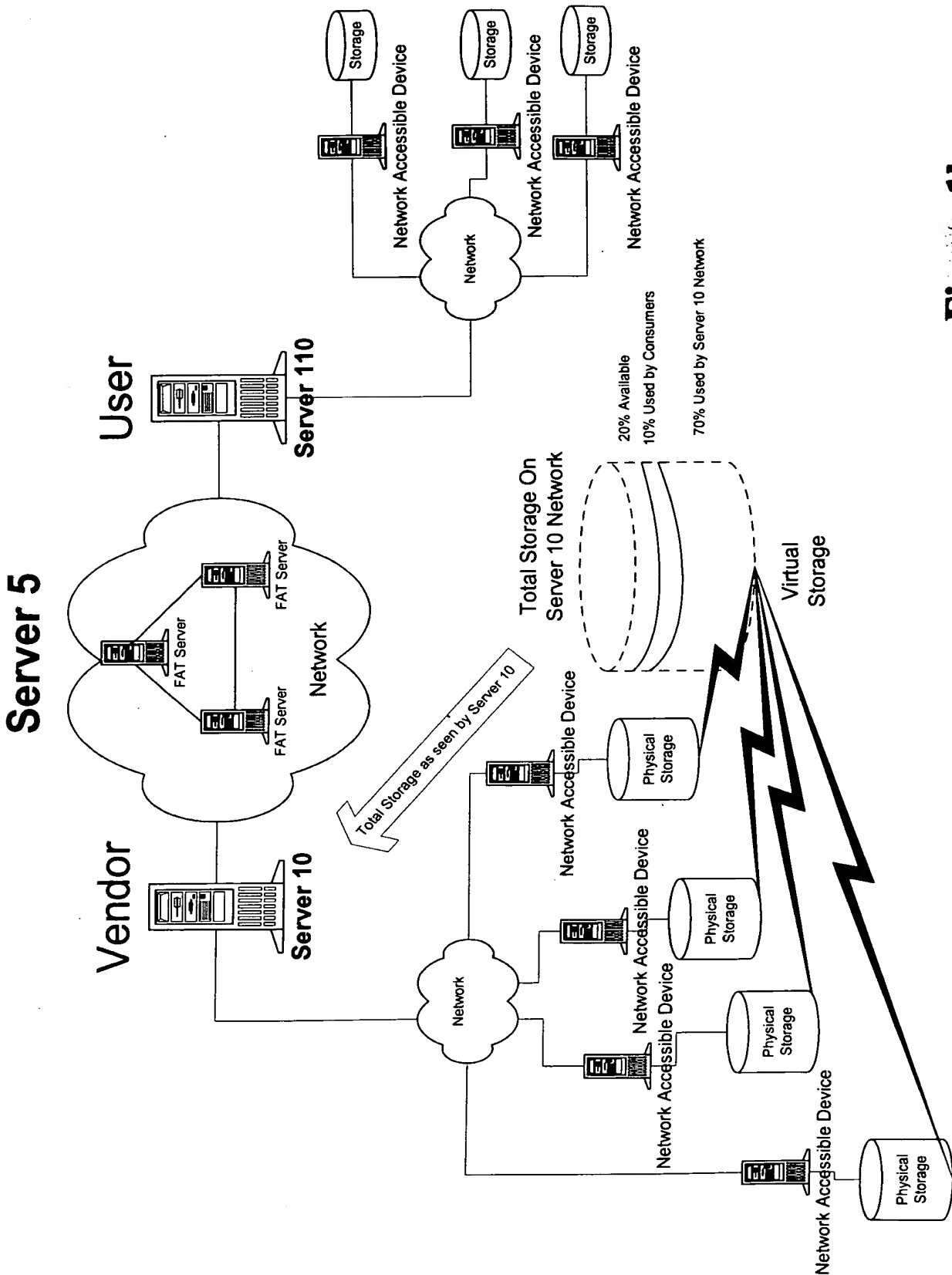
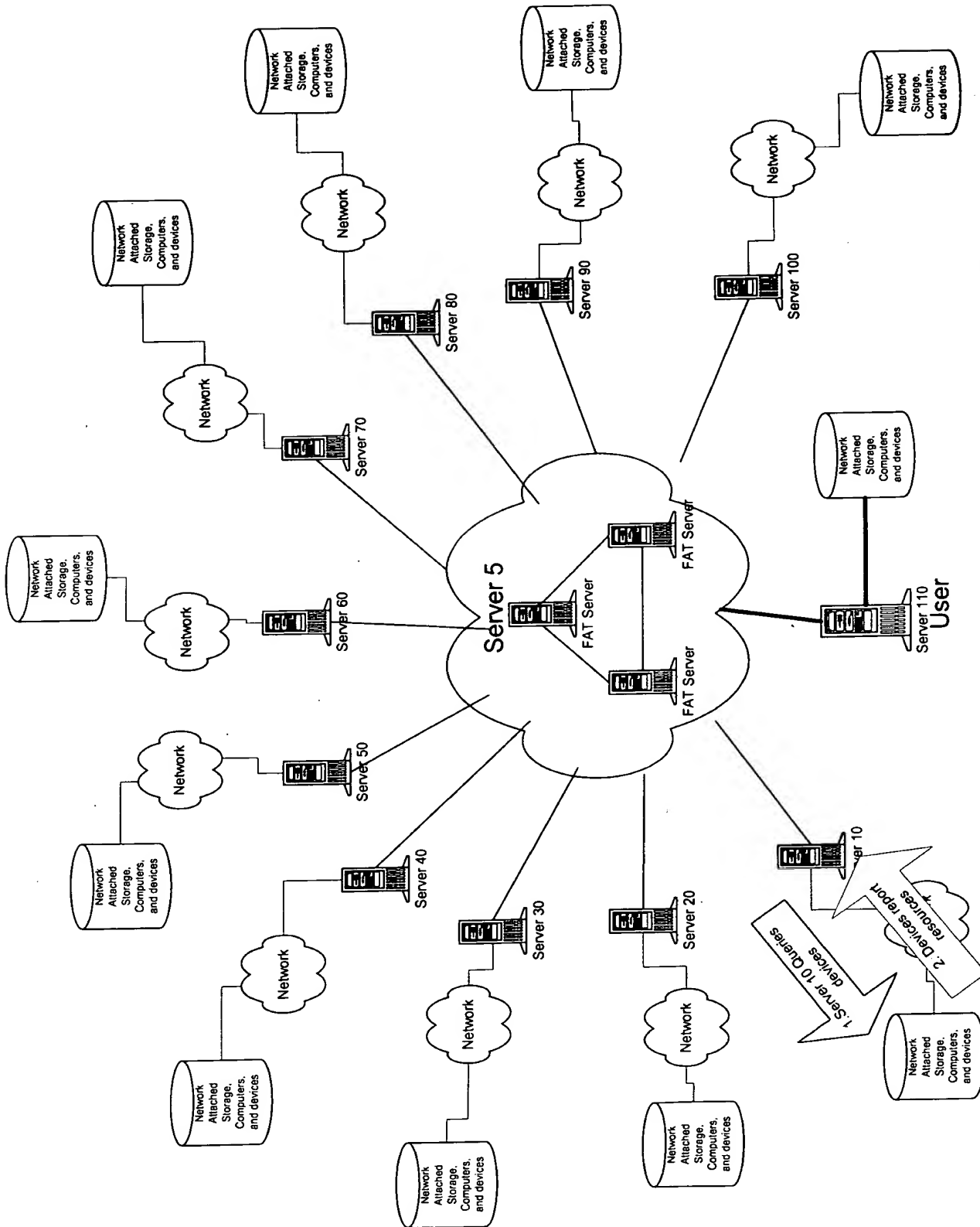


**Figure 1a**

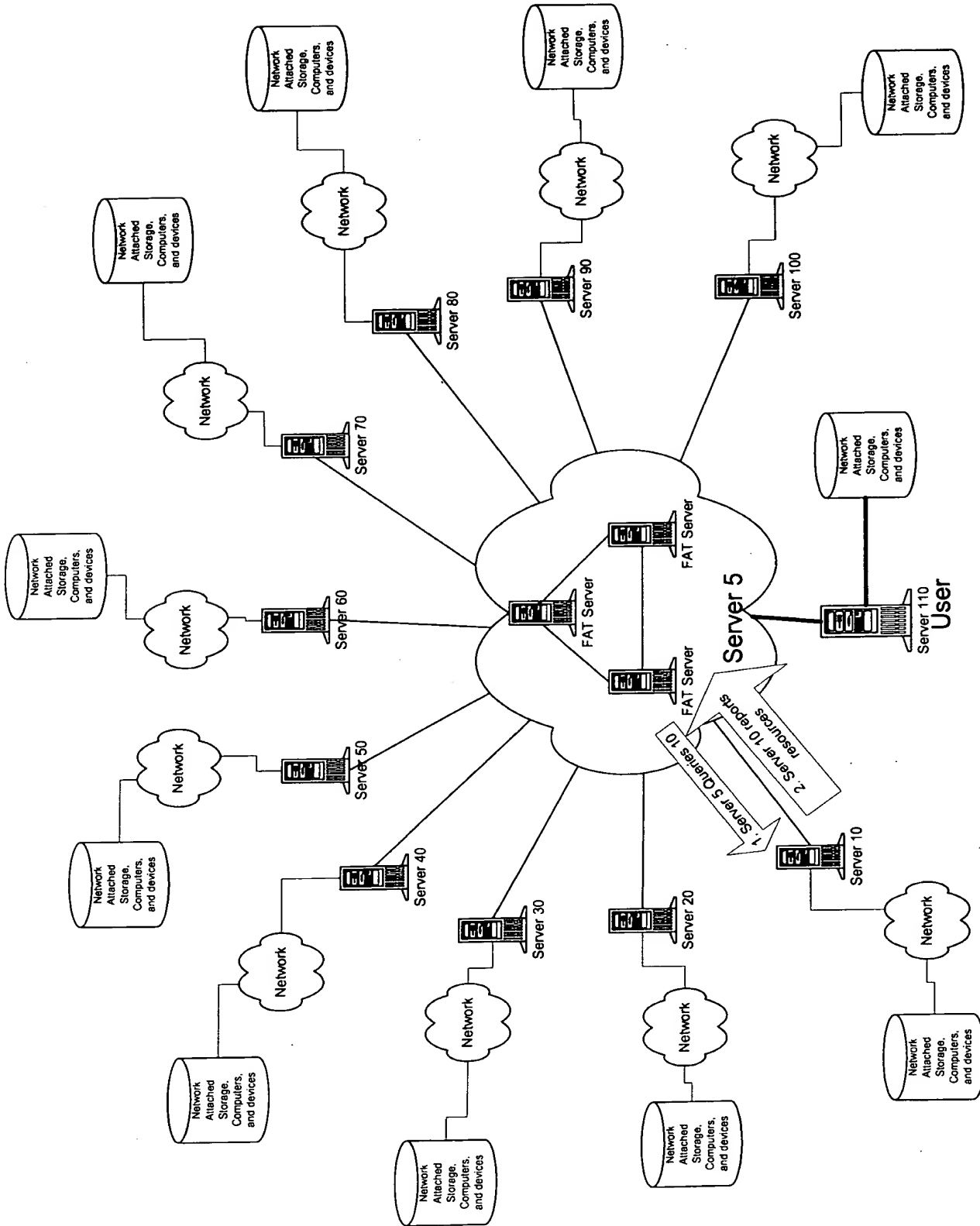


**Figure 1b**



**Figure 1c**

Networked attached storage devices report to attached server.



**Figure 2**

Vendor Servers wishing to offer storage report their resources to Server 5 for compiling a comprehensive File Allocation Table.

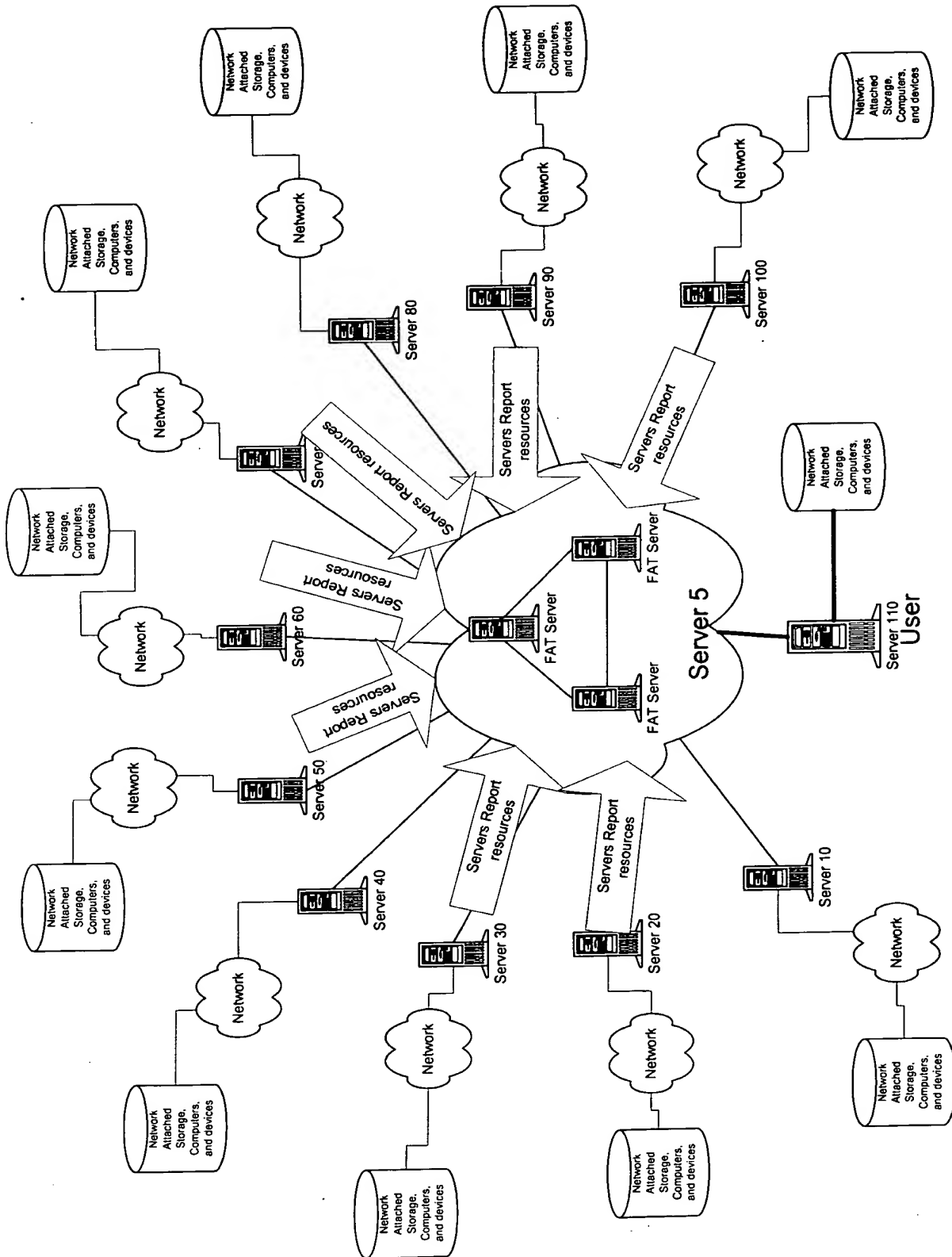
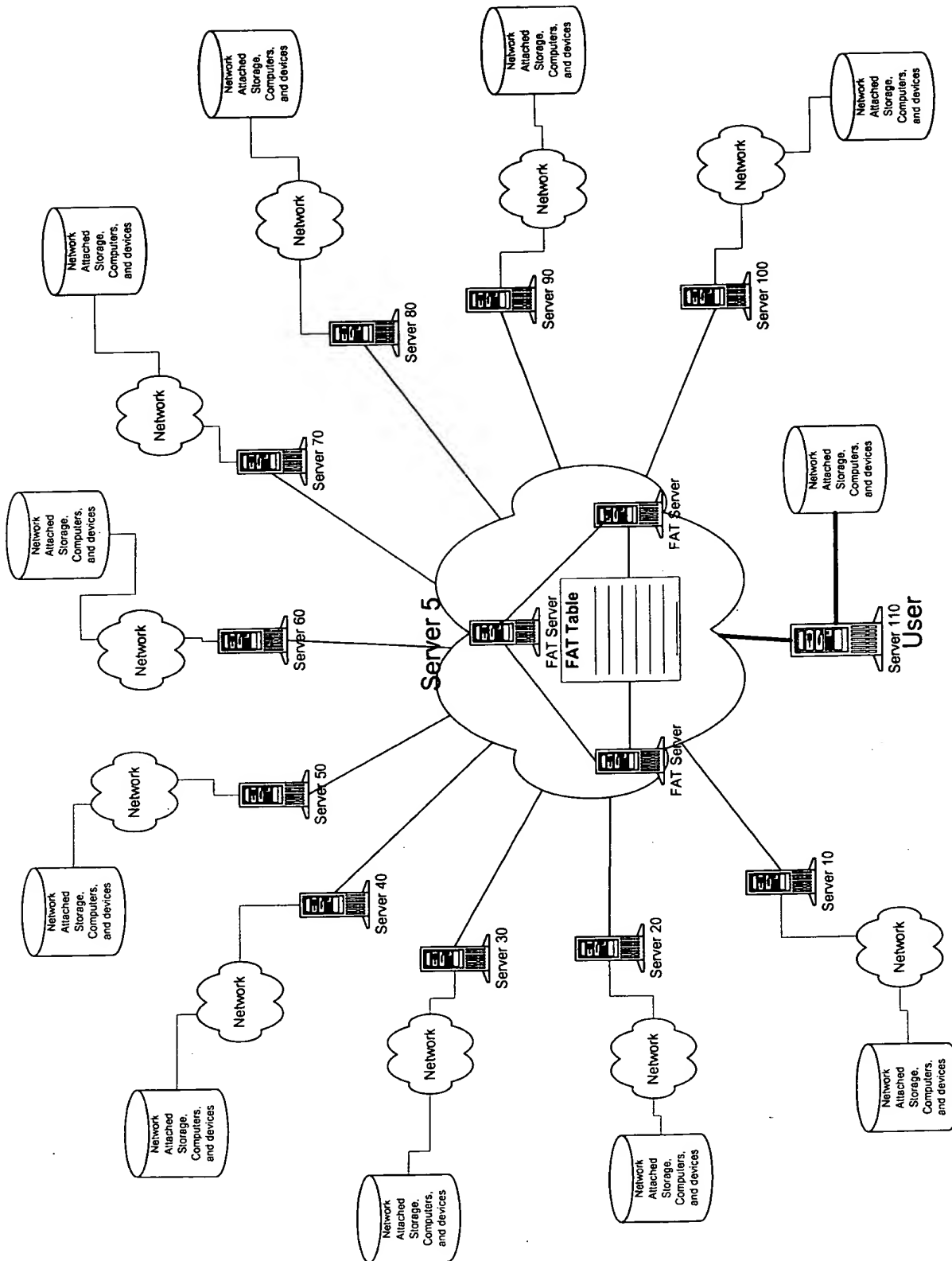


Figure 3

Vendor Servers wishing to offer storage report their resources to Server 5 for compiling a comprehensive File Allocation Table.



**Figure 4**

Server 5 forms comprehensive File Allocation Table identifying all storage available on the network, and the characteristics of each storage location.

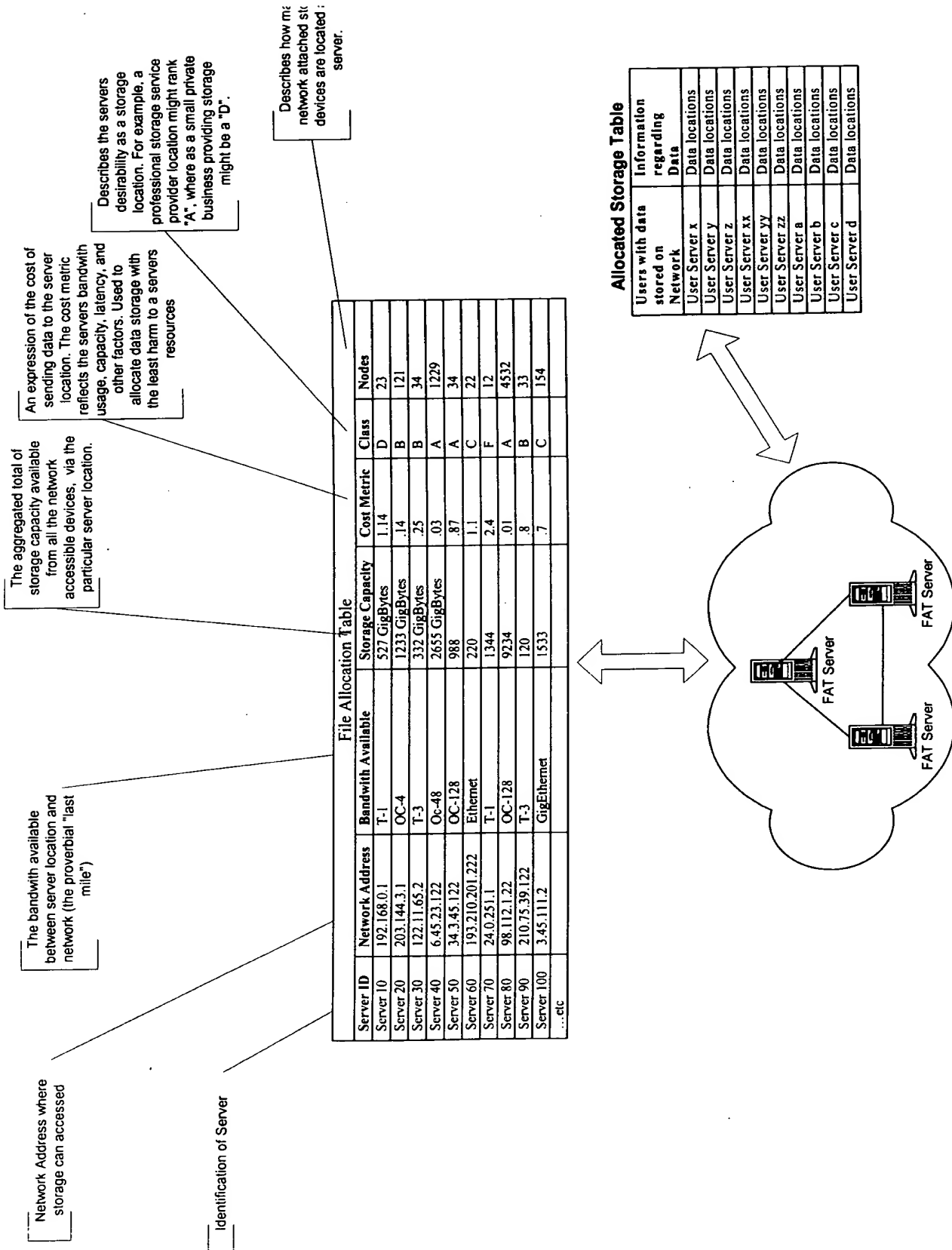
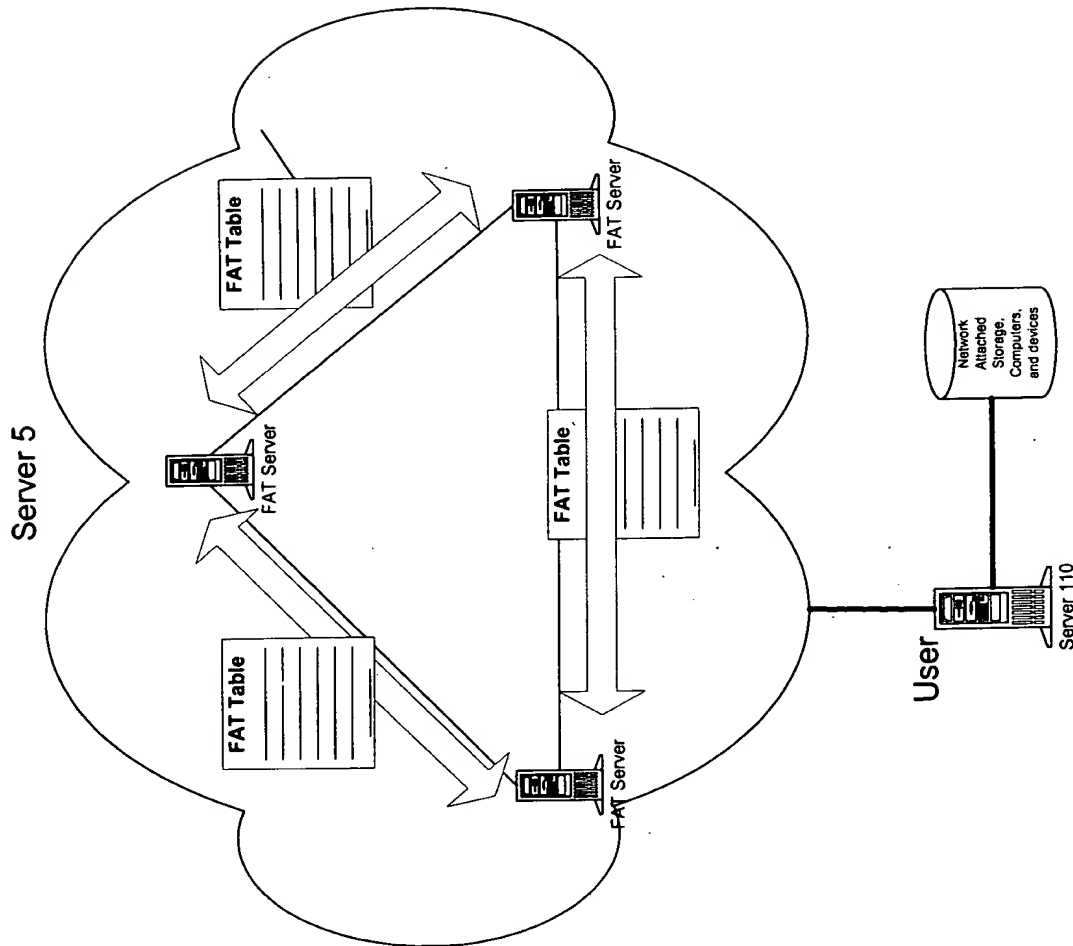


Figure 4a



**Figure 4b**

Server 5 consists of several computing systems, for redundancy and availability of the FAT tables. The FAT tables are therefore mirrored on each individual FAT server. Each individual FAT server will have the same data.



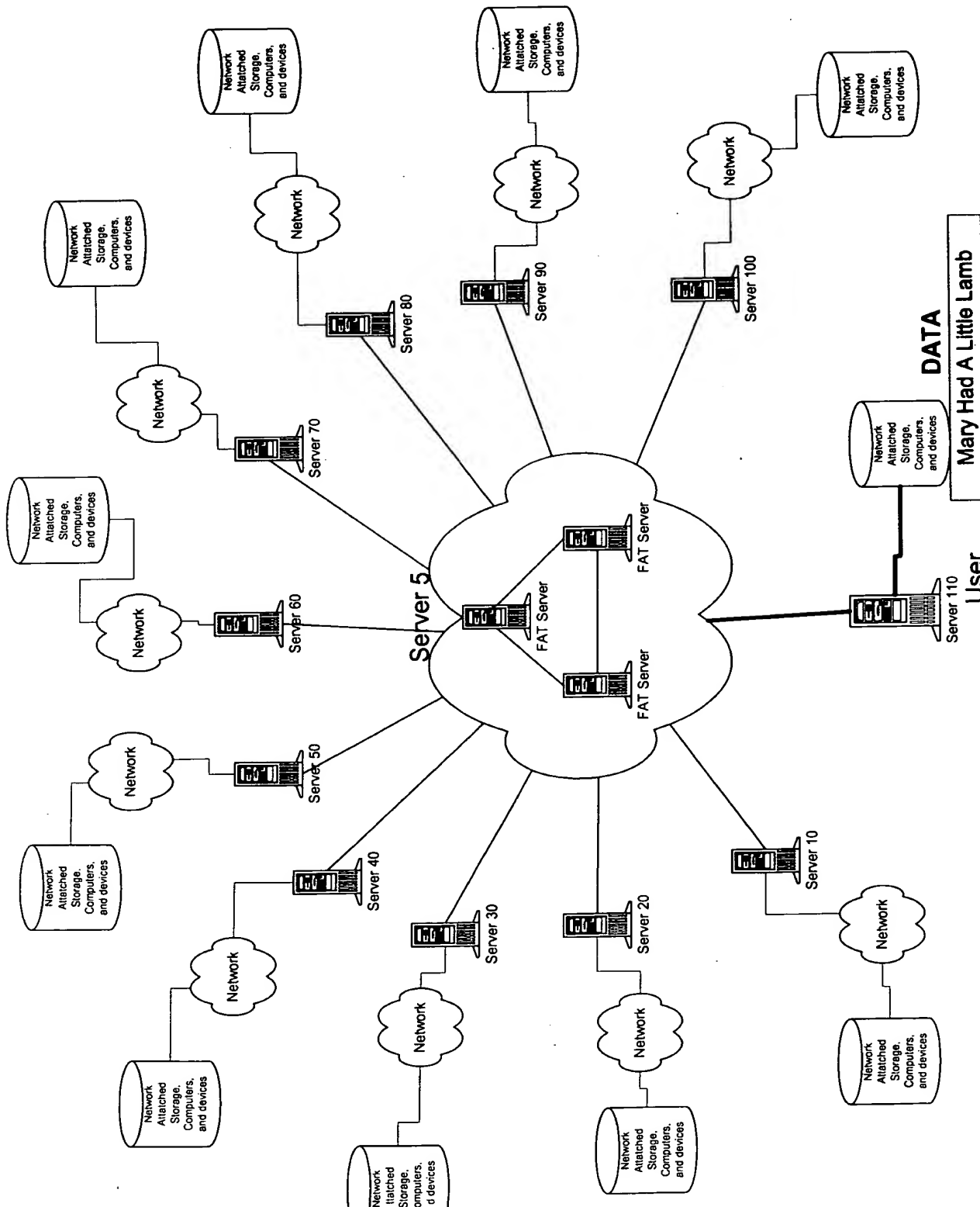
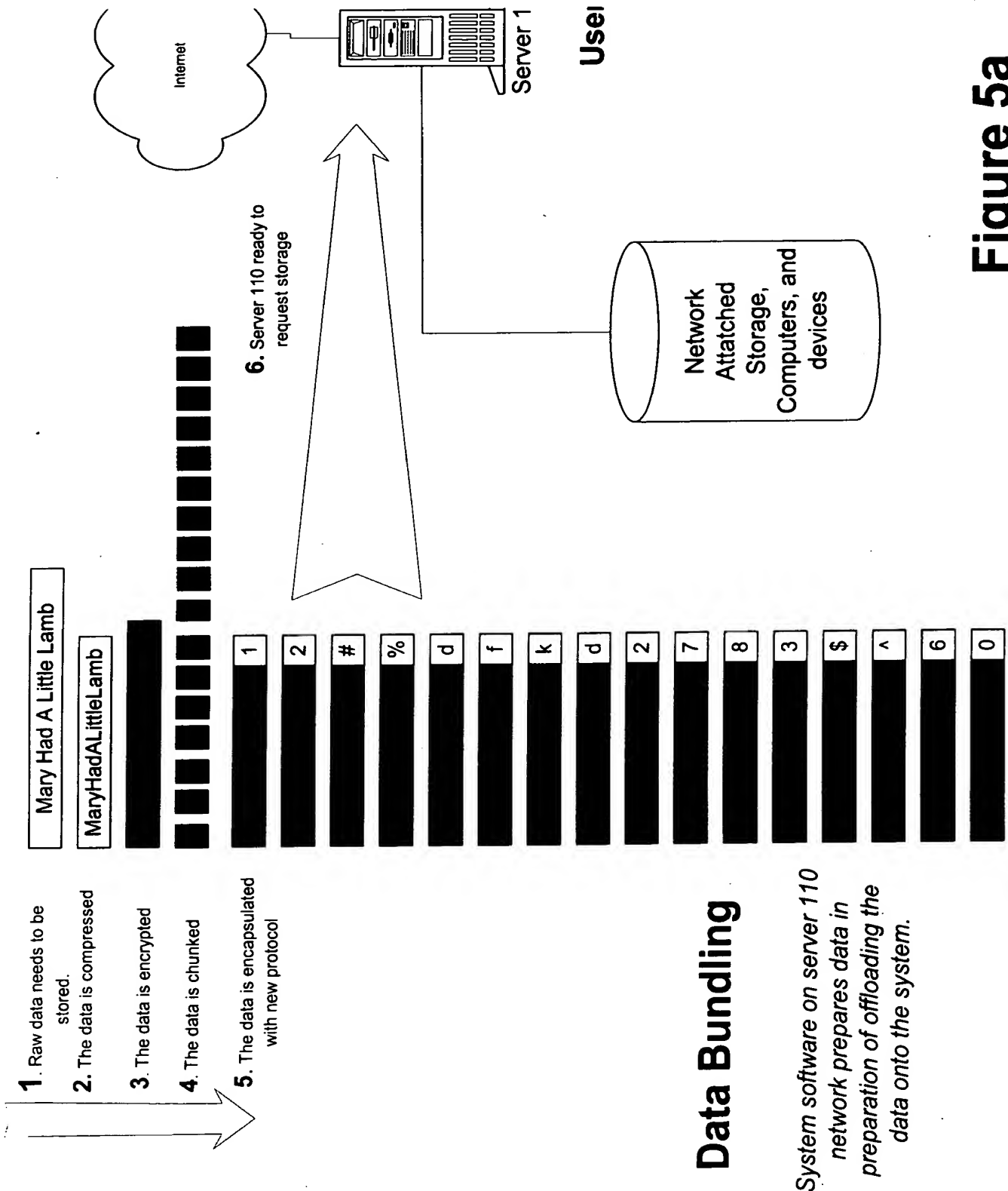


Figure 5

User, Server 110, requires storage services, either for itself, or for a network attached device on the Server 110 network.



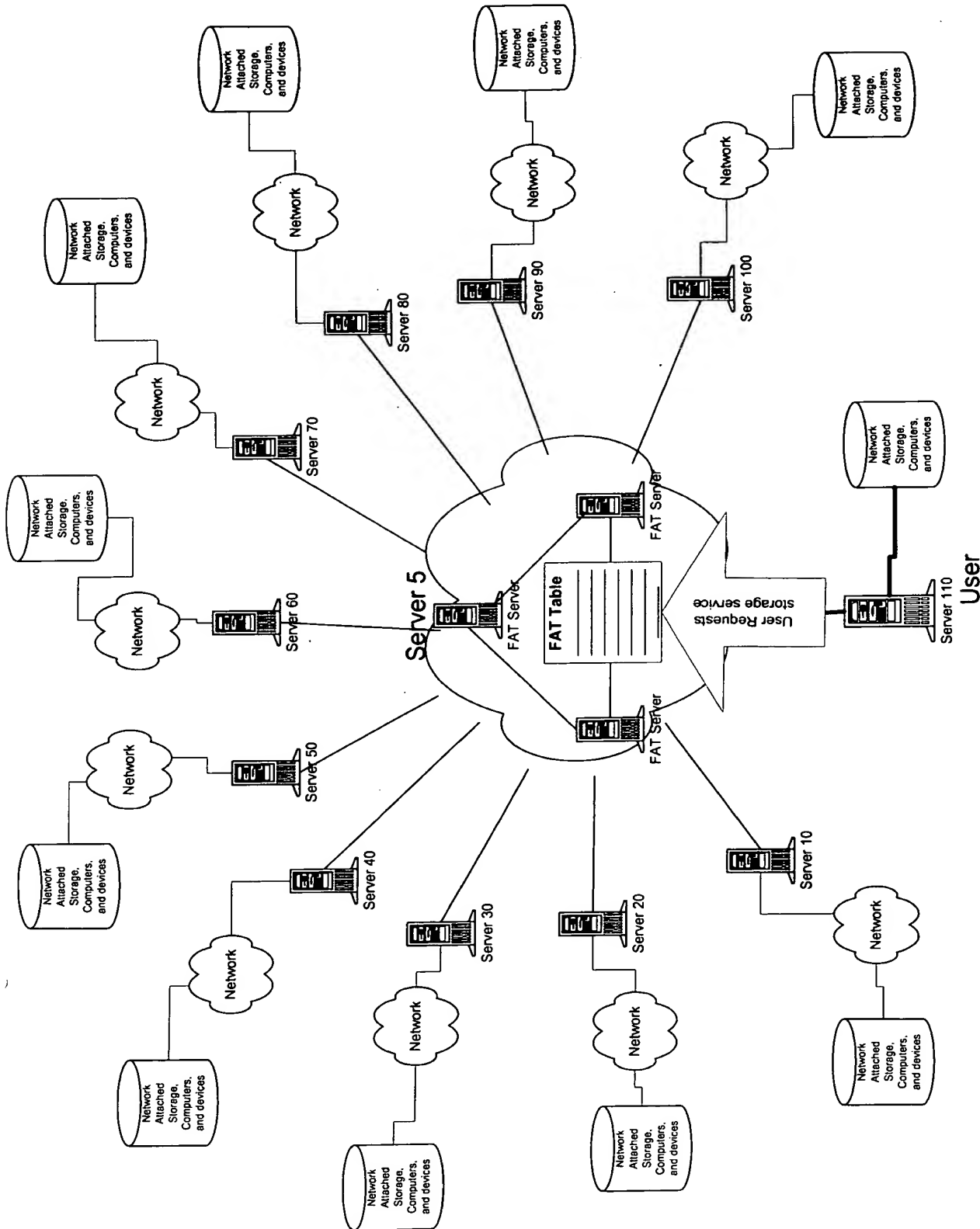
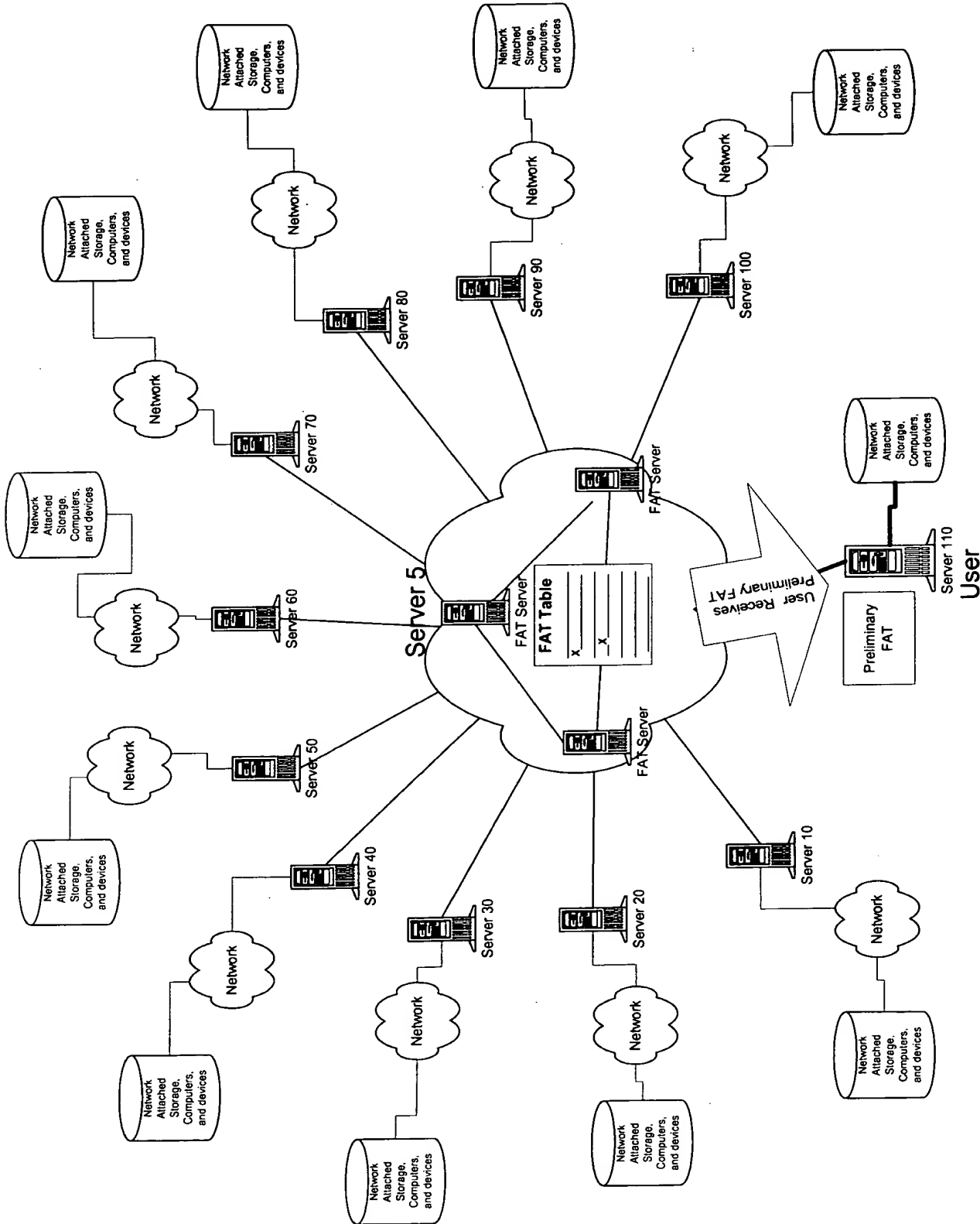


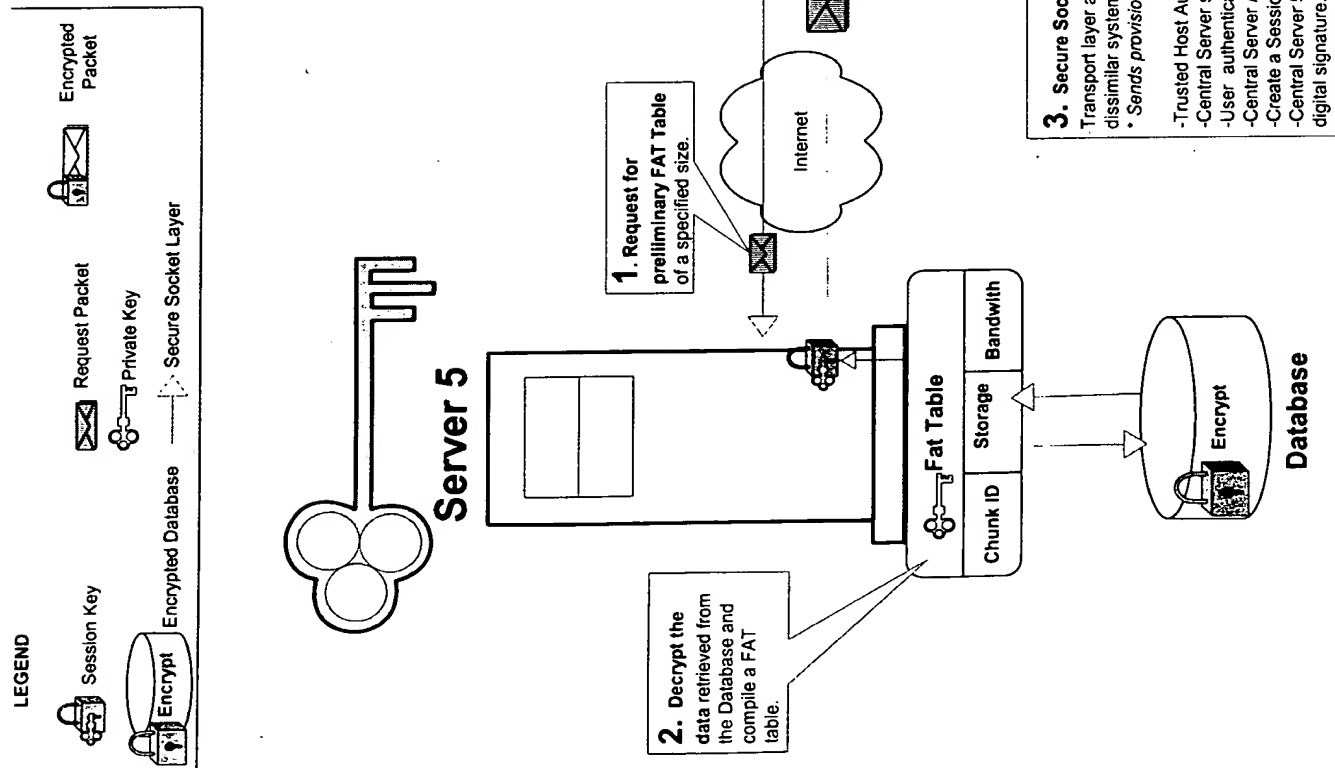
Figure 6  
User requests storage service, requires a portion of the storage found in the File Allocation Table found on Server 5



**Figure**

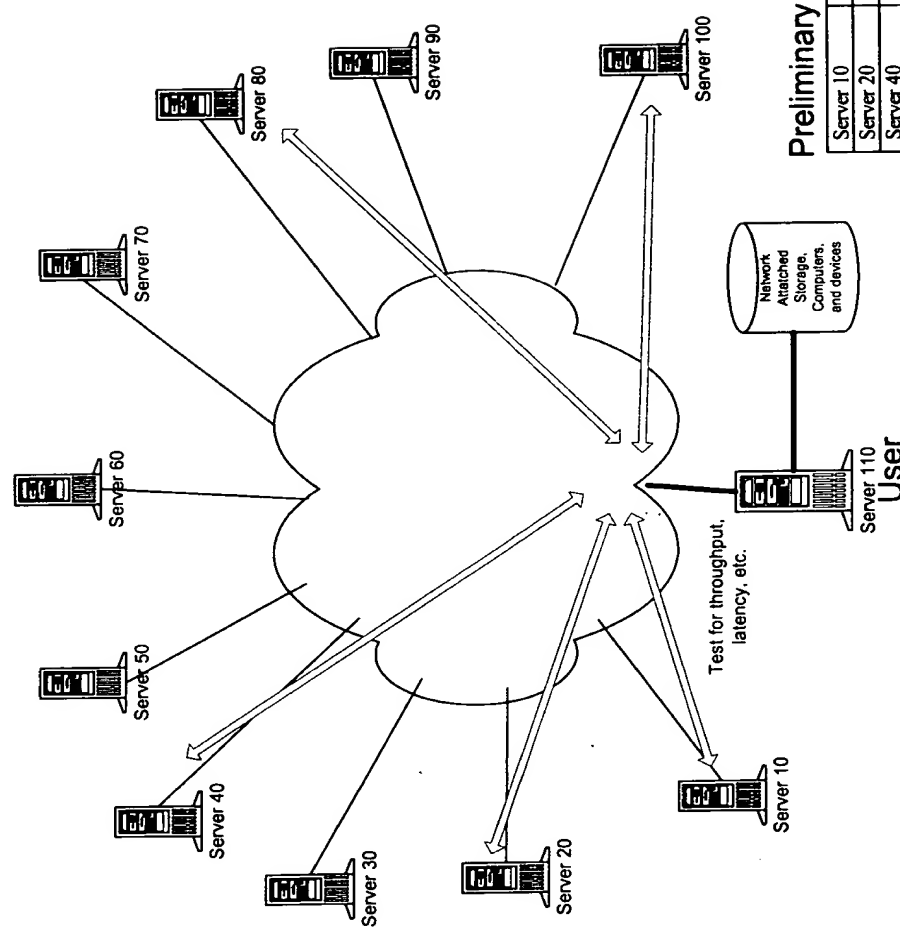
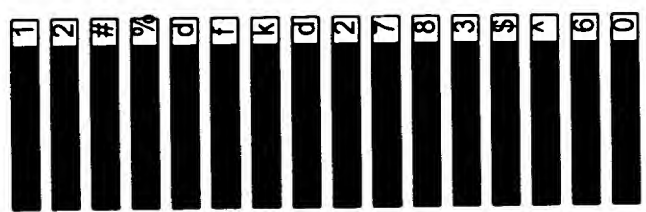
Server 5, the File Allocation Servers, sends Server 110 a provisional FAT table, allocating storage space. Server 5 marks on the central FAT which records it has released to server 110, and locks those storage records so that no other user can use those storage resources.

Figure 7a



User requests storage service, requires a portion of the storage found in the File Allocation Table found on Server 5

Data on or  
 accessible to  
 User Server 110,  
 to be stored on  
 system



**Preliminary FAT Table**

Server 10	10 Gigabytes
Server 20	66 Gigabytes
Server 40	15 Gigabytes
Server 60	22 Gigabytes
Server 80	45 Gigabytes
Server 100	22 Gigabytes

The user, Server 110, searches for an optimum path to offload data. Server 110 checks each potential location in the provisional FAT table paths for optimum path; latency, hop count, availability, etc.

**Figure 8**

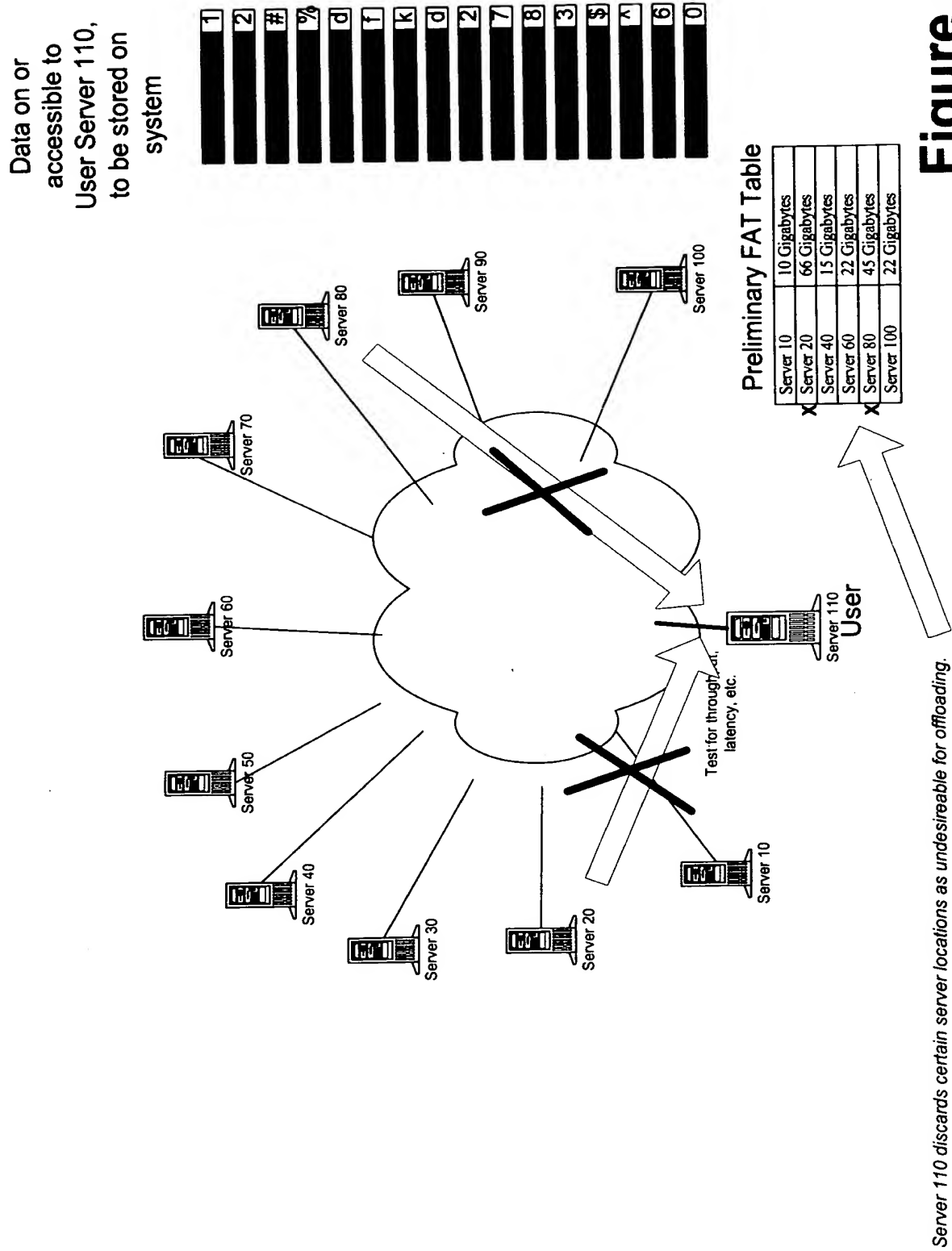
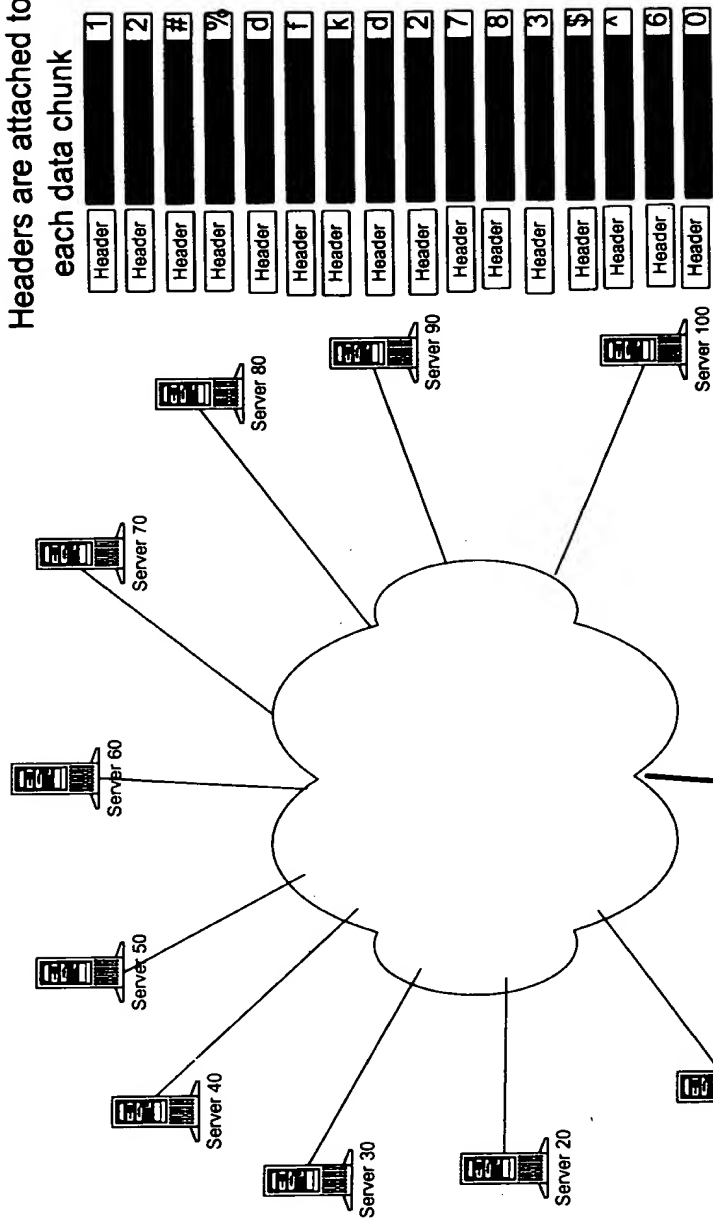


Figure 9

Data on or accessible to  
User Server 110, to be  
stored on system--  
Headers are attached to  
each data chunk



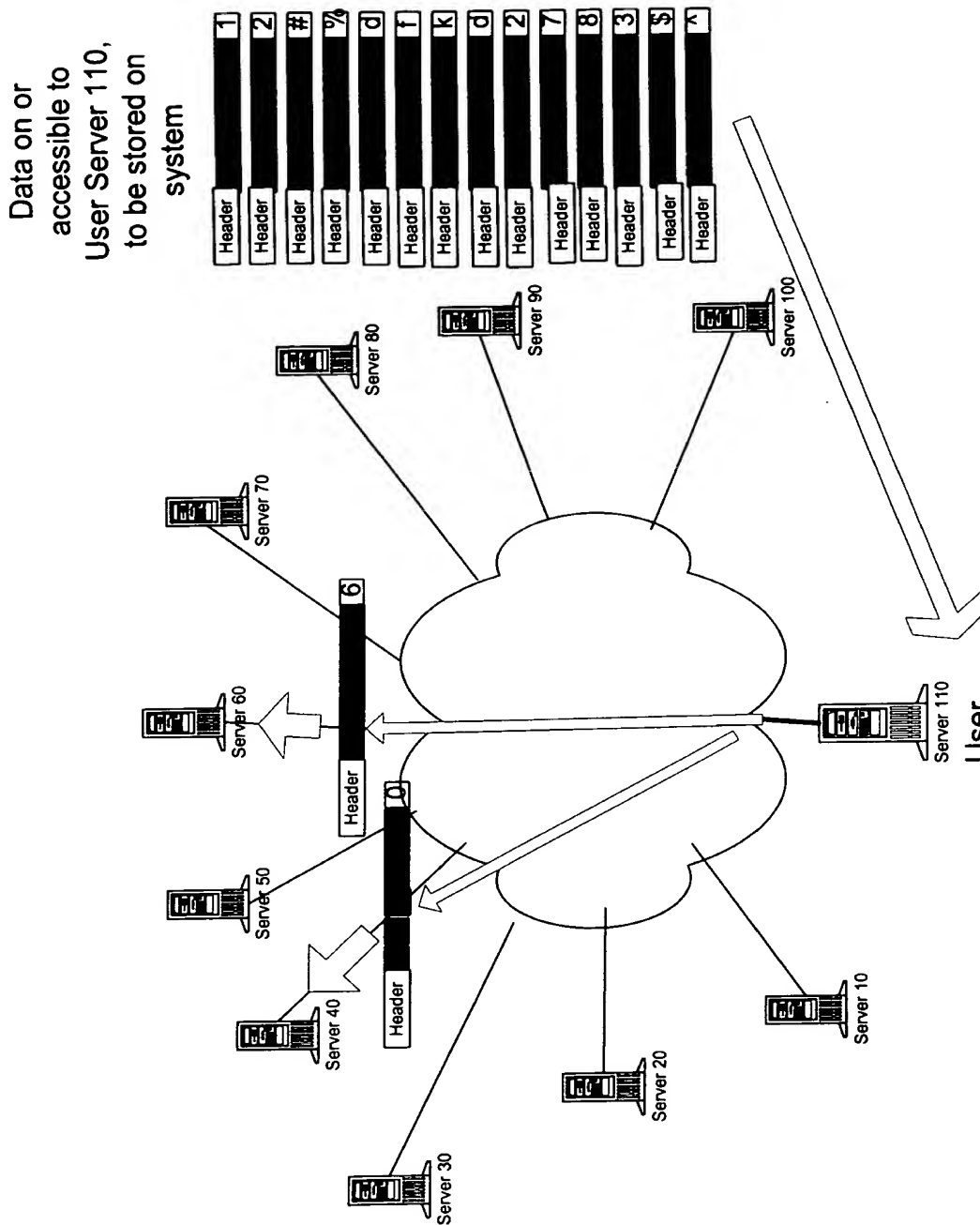
Preliminary FAT Table

Server 10	10 Gigabytes
Server 20	66 Gigabytes
Server 40	15 Gigabytes
Server 60	22 Gigabytes
Server 80	45 Gigabytes
Server 100	22 Gigabytes

Headers are attached to the data chunks, individually. The header identifies that the data belongs to Server 110, where the data is to be sent, where the data is to be resent for duplication, and how much the data needs to be chunked further at each vendor server location to further protect the data.

Figure 10



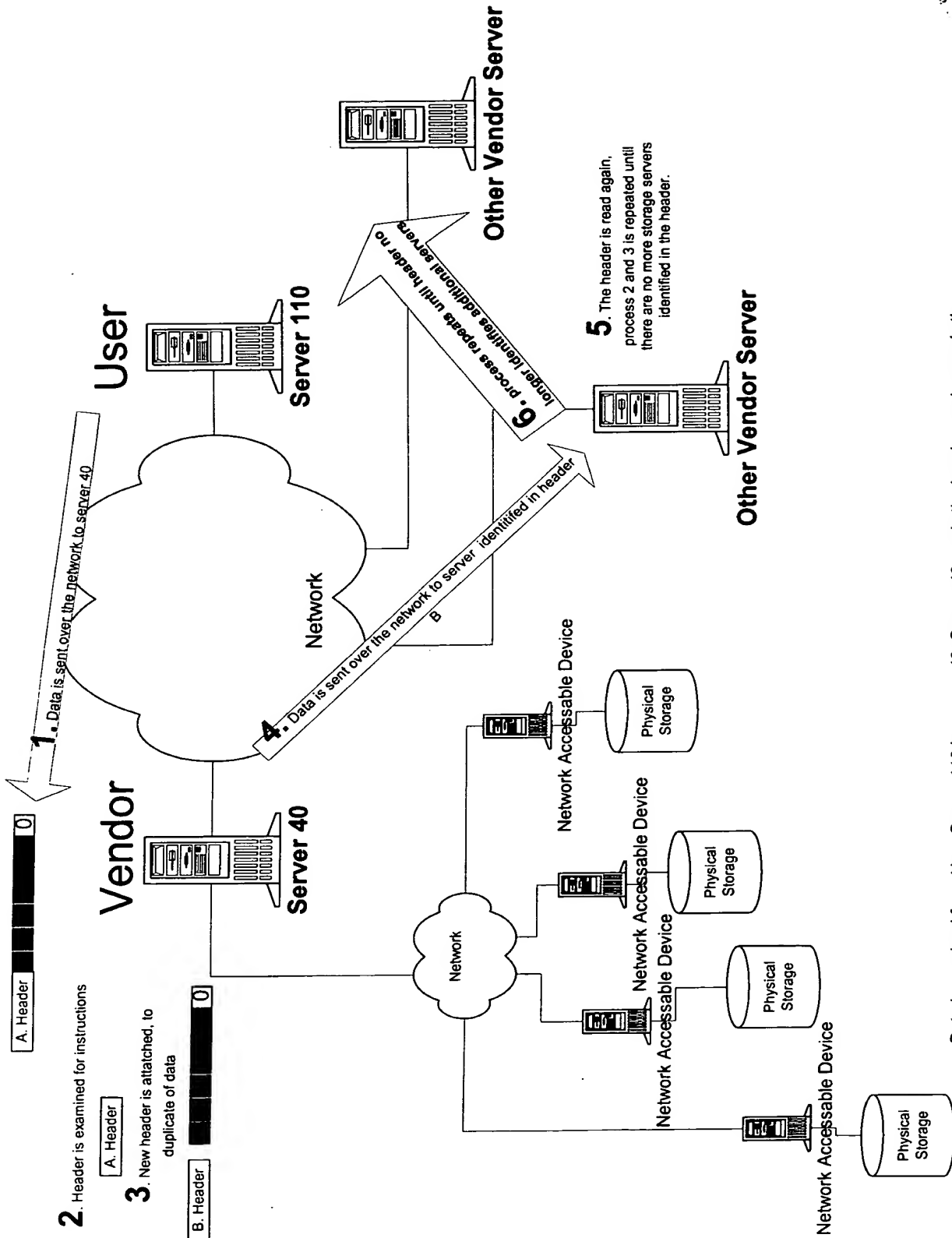


Preliminary FAT Table

Server 10	10 Gigabytes
Server 20	66 Gigabytes
Server 40	15 Gigabytes
Server 60	22 Gigabytes
Server 80	45 Gigabytes
Server 100	22 Gigabytes

Figure 11

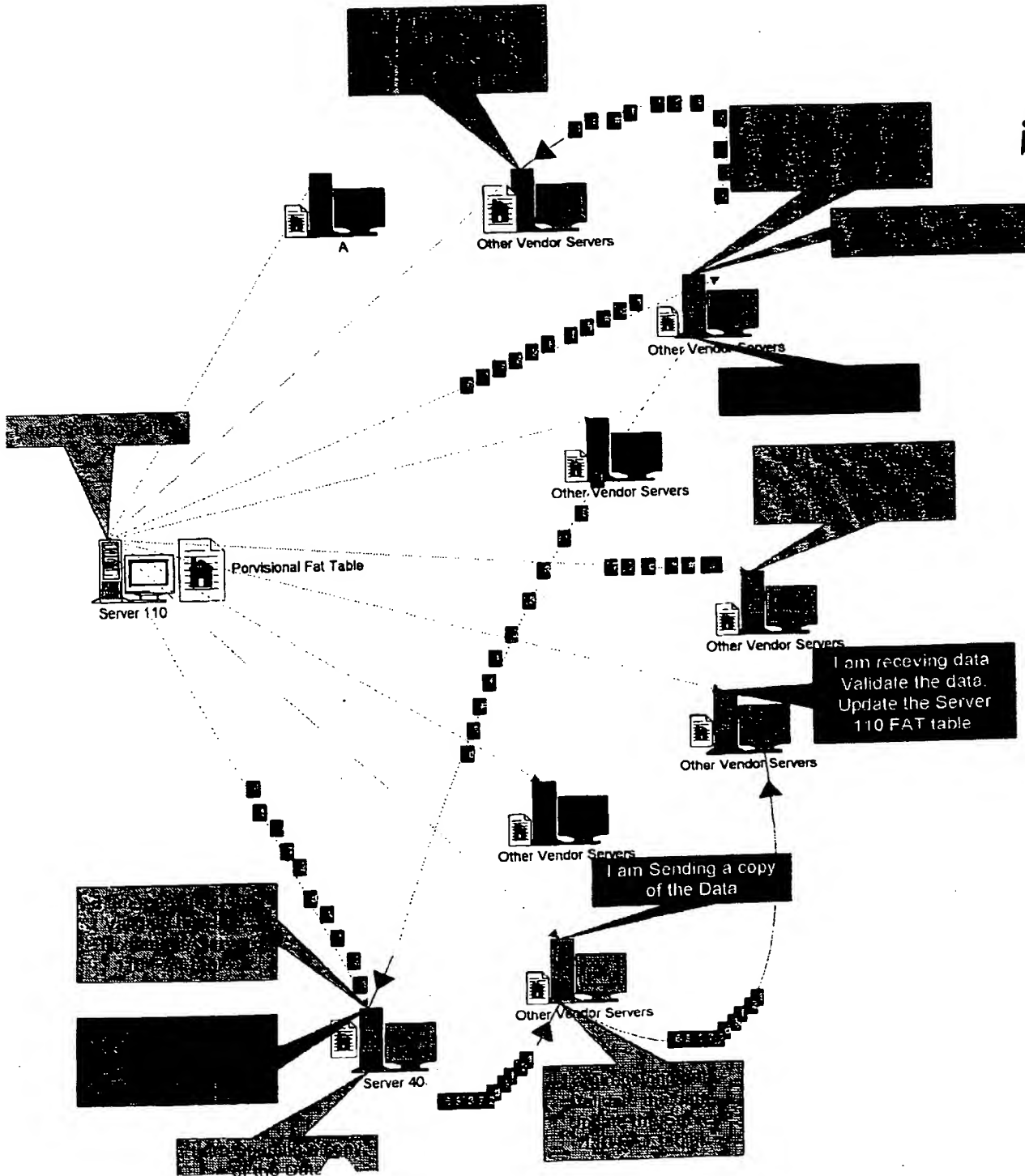
Server 110 sends data to servers for storage.

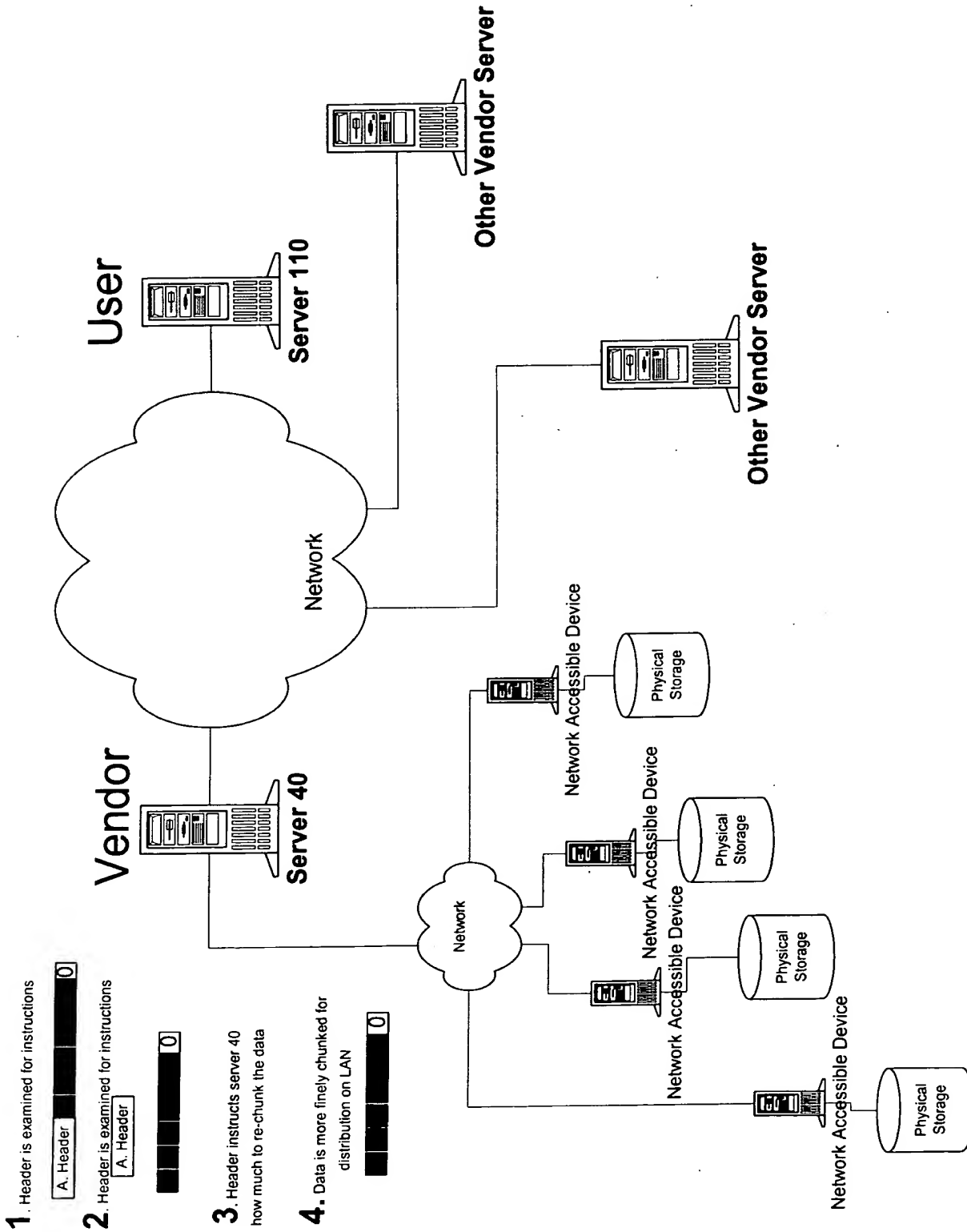


Data is received from User Server 110 by server 40. Server 40 reads the header, and resends the data chunk if the header identifies another location for the chunk to be delivered to, ie, another vendor server. Server 40 removes itself on the list of storage locations from the header, and reapplies the header to the data and resends the data.

**Figure 12**

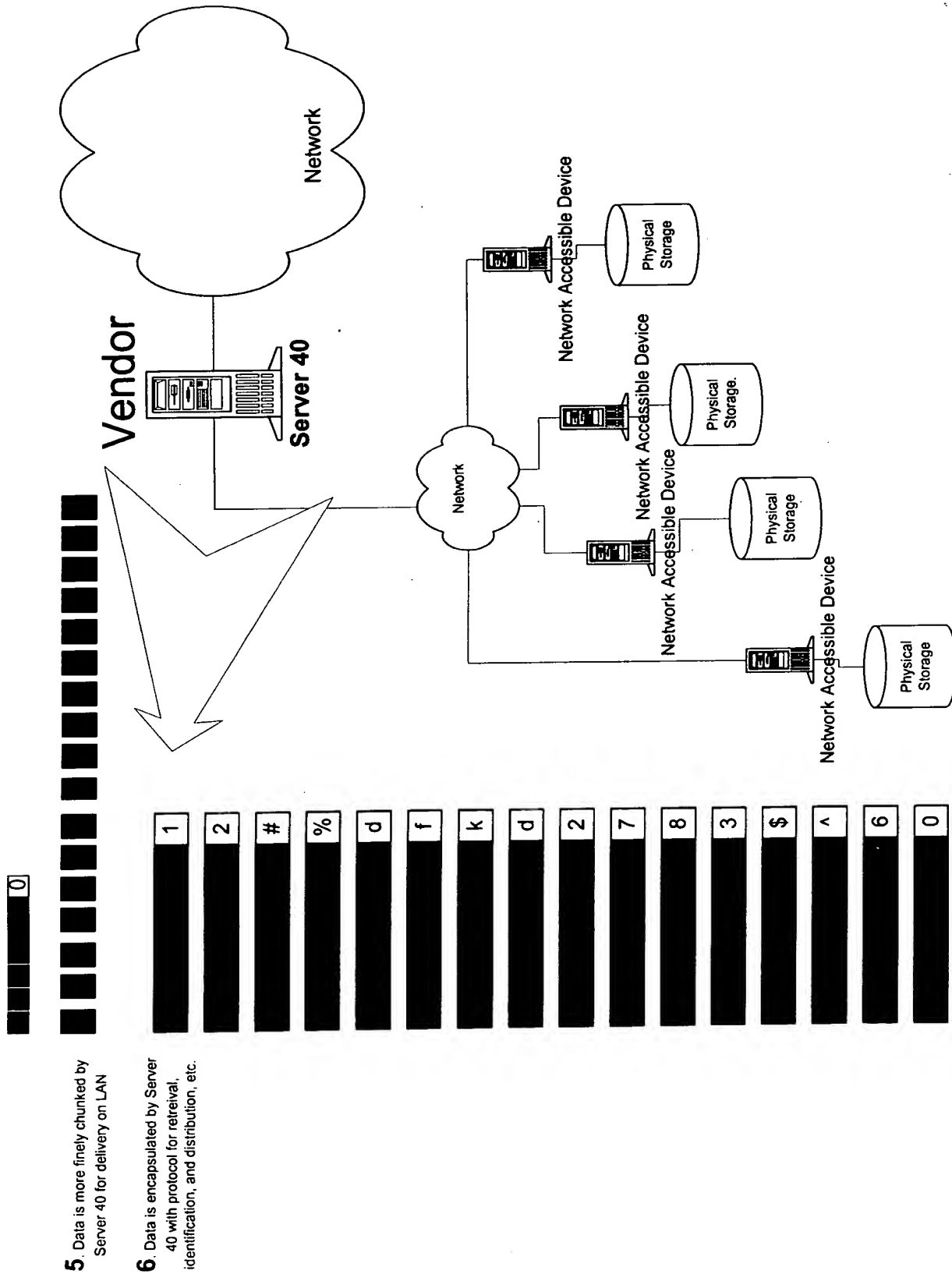
Figure 12a





**Figure 13a**

Data is received from Server 110 by Server 40, and is prepared for distribution on the server 40 network.



Server 40 reads in the header the instructions as to how much to re-chunk the data before distribution on the Server 40 network. Server 40 will rechunk the data at least as much as the header requests.

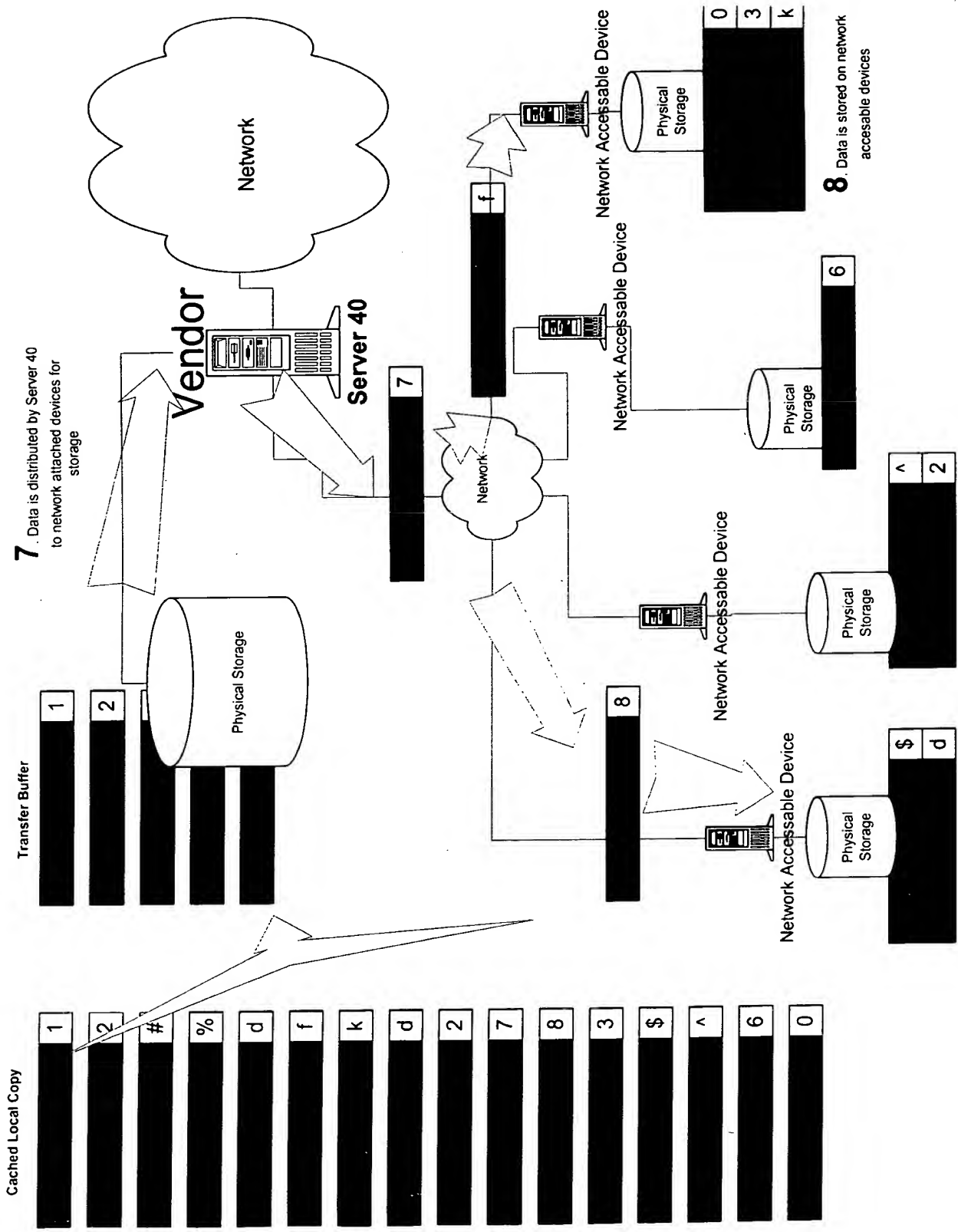
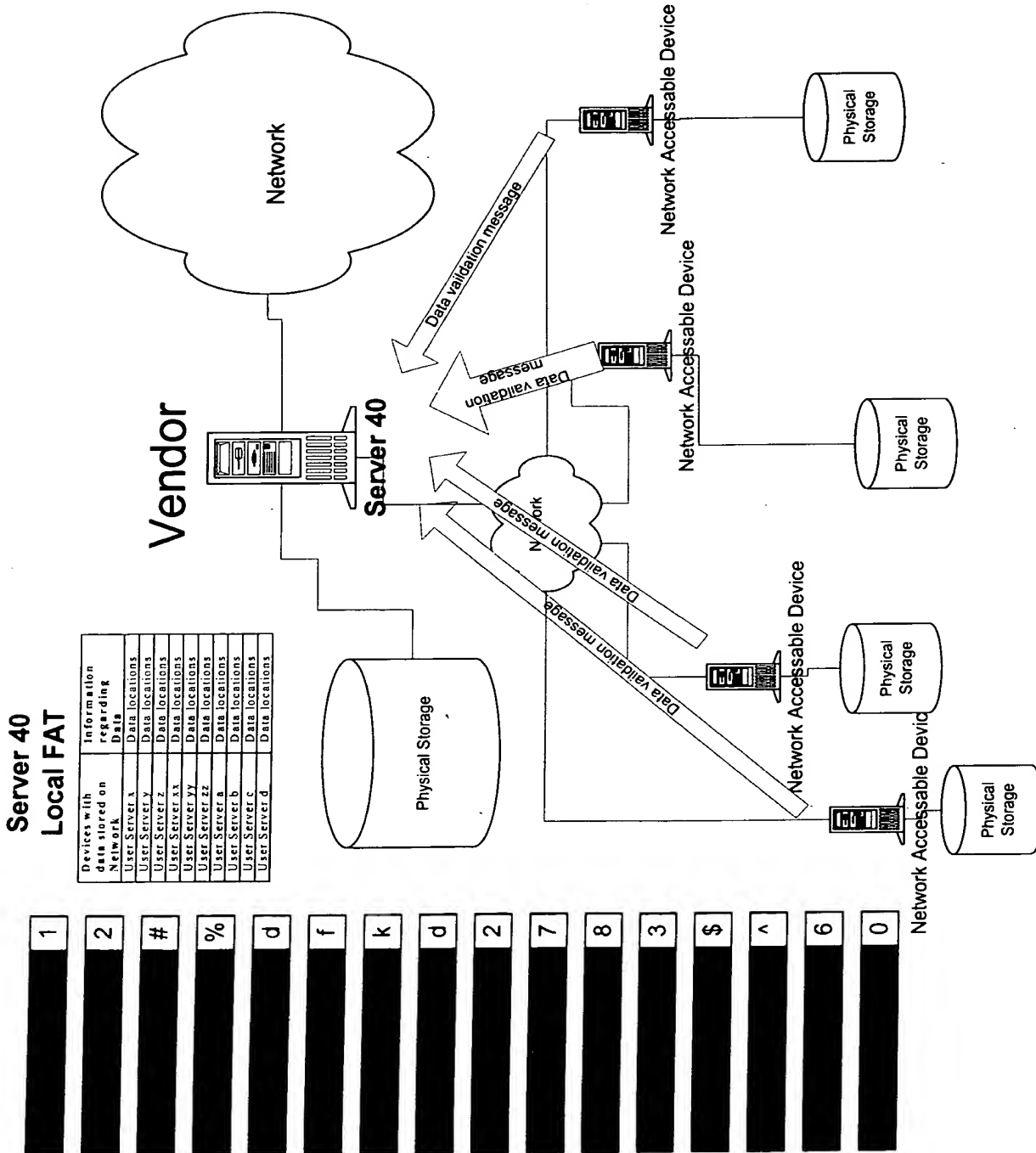


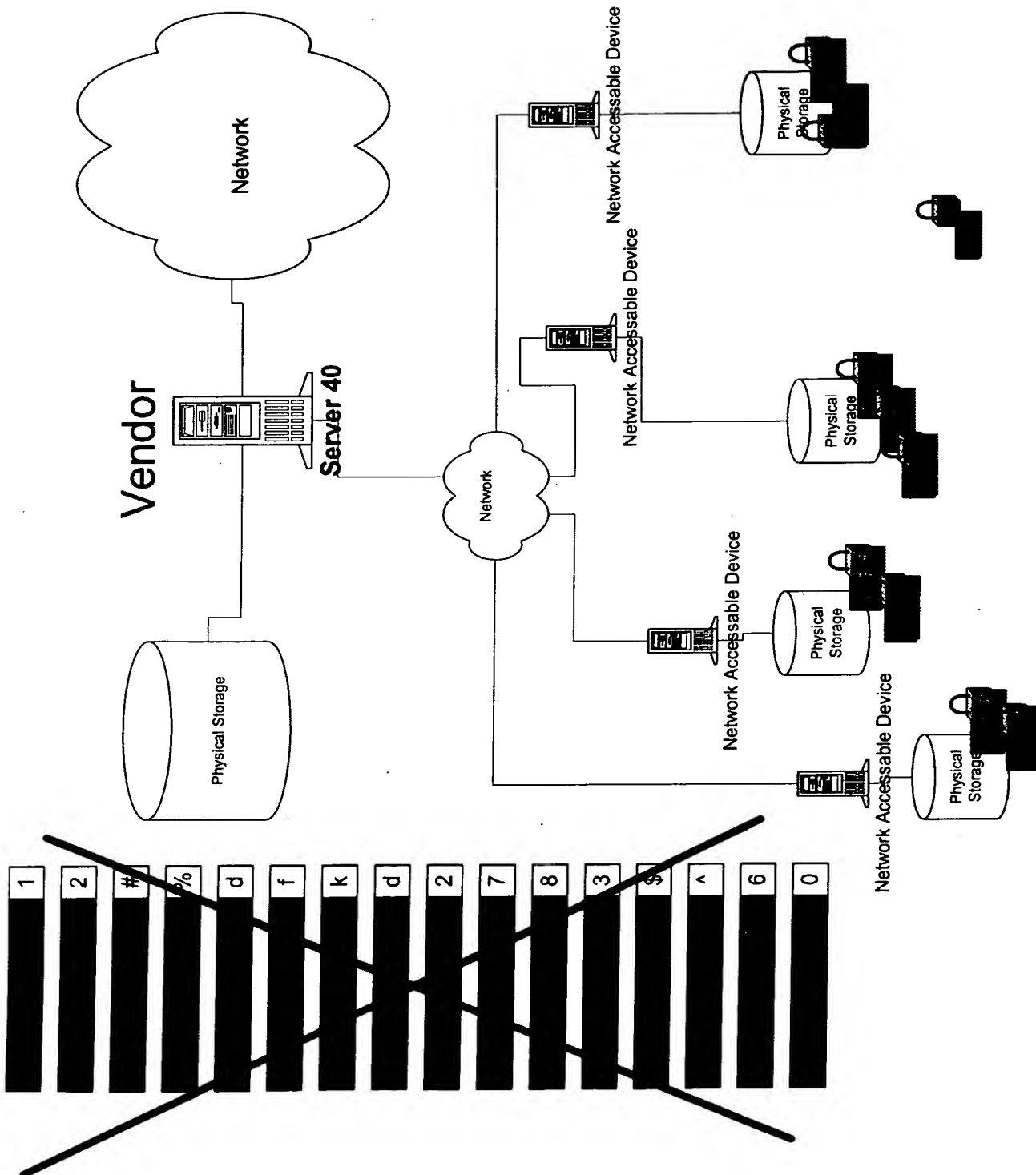
Figure 13c

Server 40 sends server 110's data to the network accessible devices for storage.



**Figure 13**

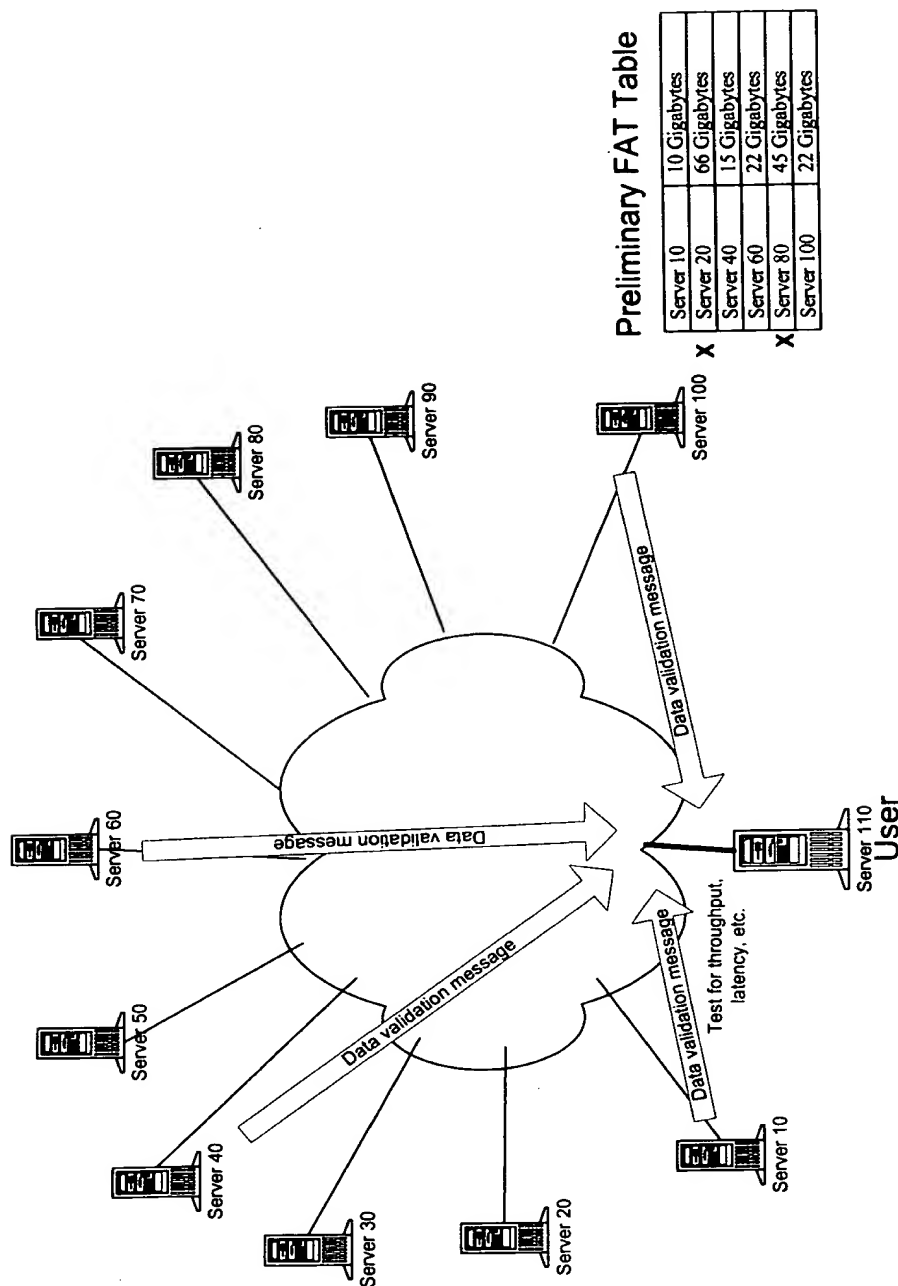
Network accessible devices on the server 40 network respond to server 40 with a data validation message, confirming that the data was successfully stored. If no data validation message returns for a particular data chunk, the chunk is either resent or sent to a different device on the server 40 network. Server 40 compiles and stores local File Allocation Table for the data stored on the Server 40 network



**Figure 13**

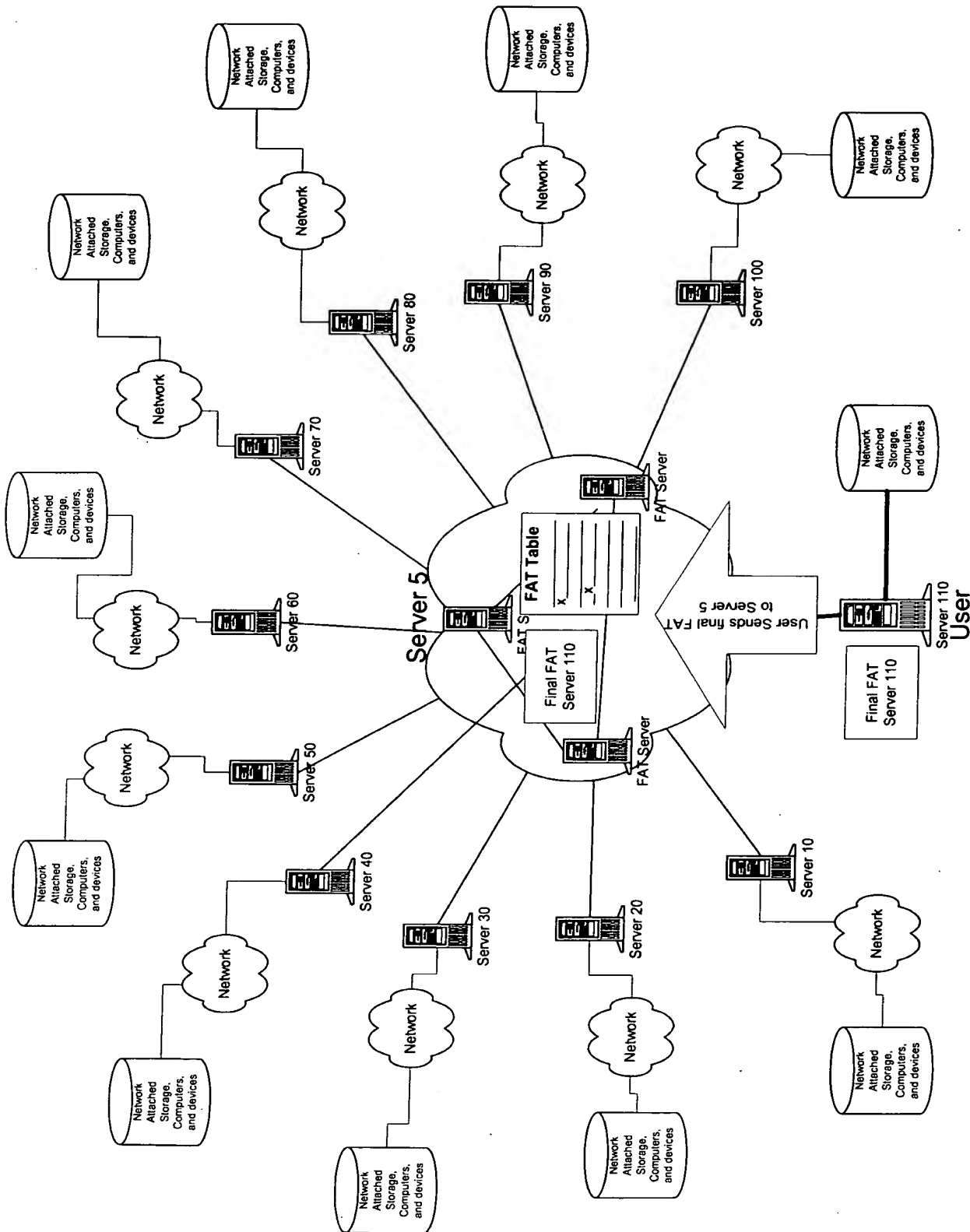
Server 40 receives validation messages from Network accessible devices, and is free to erase the Server 40 local copy of the data. Server 40 maintains a record of where the data resides.





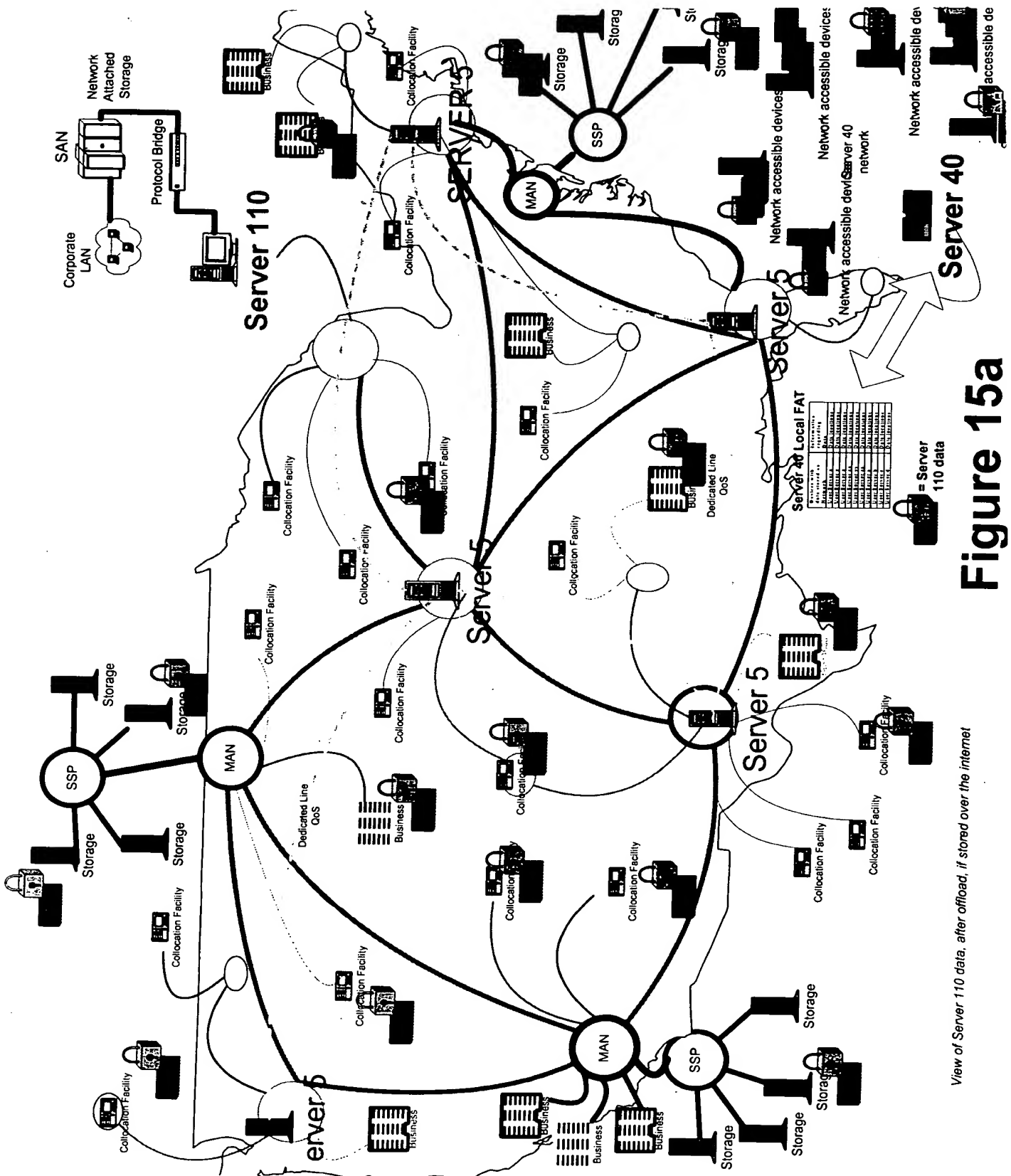
**Figure 14**

Servers providing storage report back to user to validate that the data was stored successfully. If unsuccessful, or a vendor servers is not heard from, then the data will be resent to a new location, and the location will be marked as unused on the preliminary FAT table.



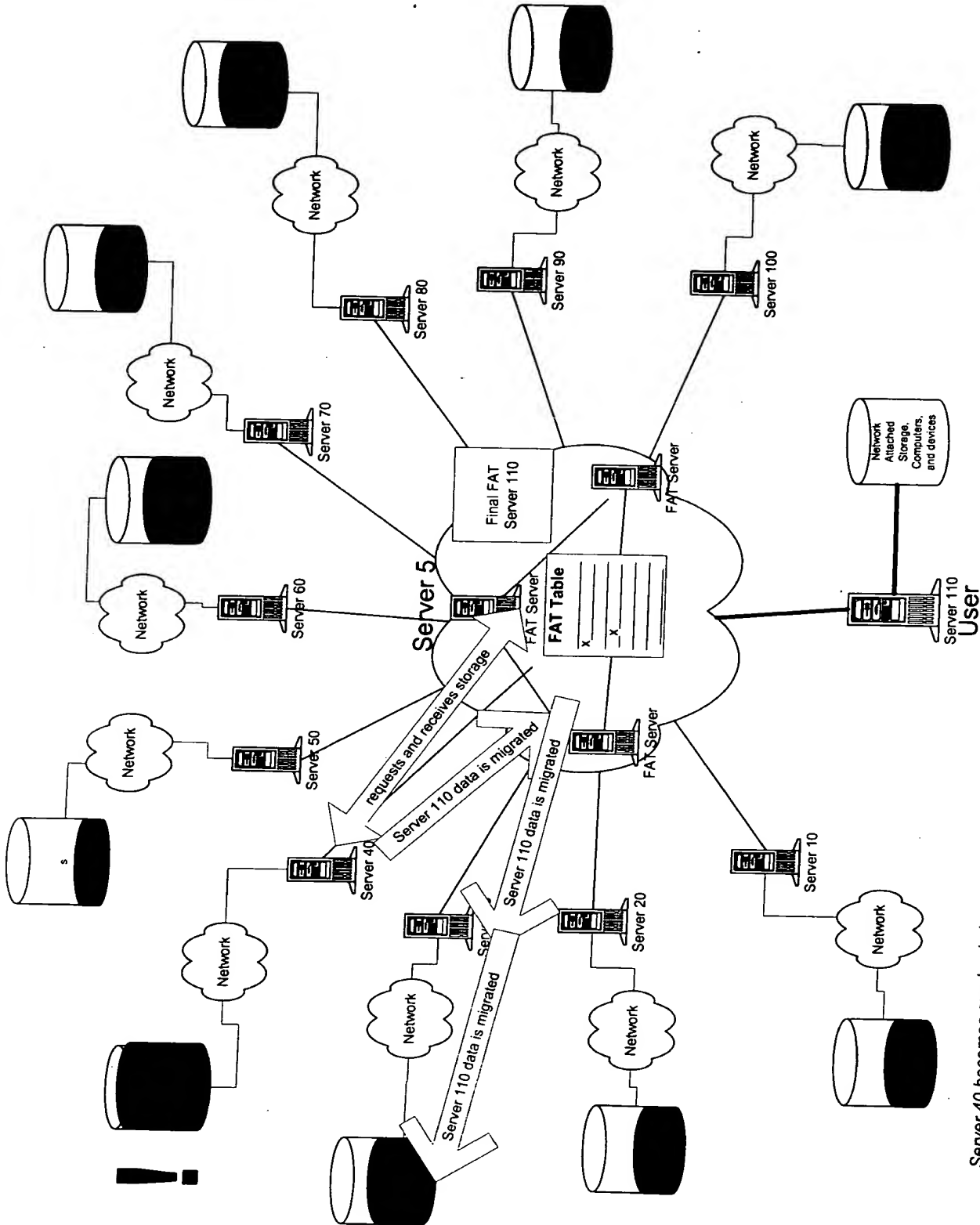
**Figure 1**

Server 110 compiles a final FAT, identifying where the data finally was stored successfully. Server 110 sends the final FAT table to Server 5 for storage for when Server 110 wishes to download the data back to Server 110 at a later time. Server 5 checks the final FAT, and releases as usable by other Users any location on the Final FAT that Server 110 did not use. Server 5 marks as "used" any server resources allocated and used by Server 110



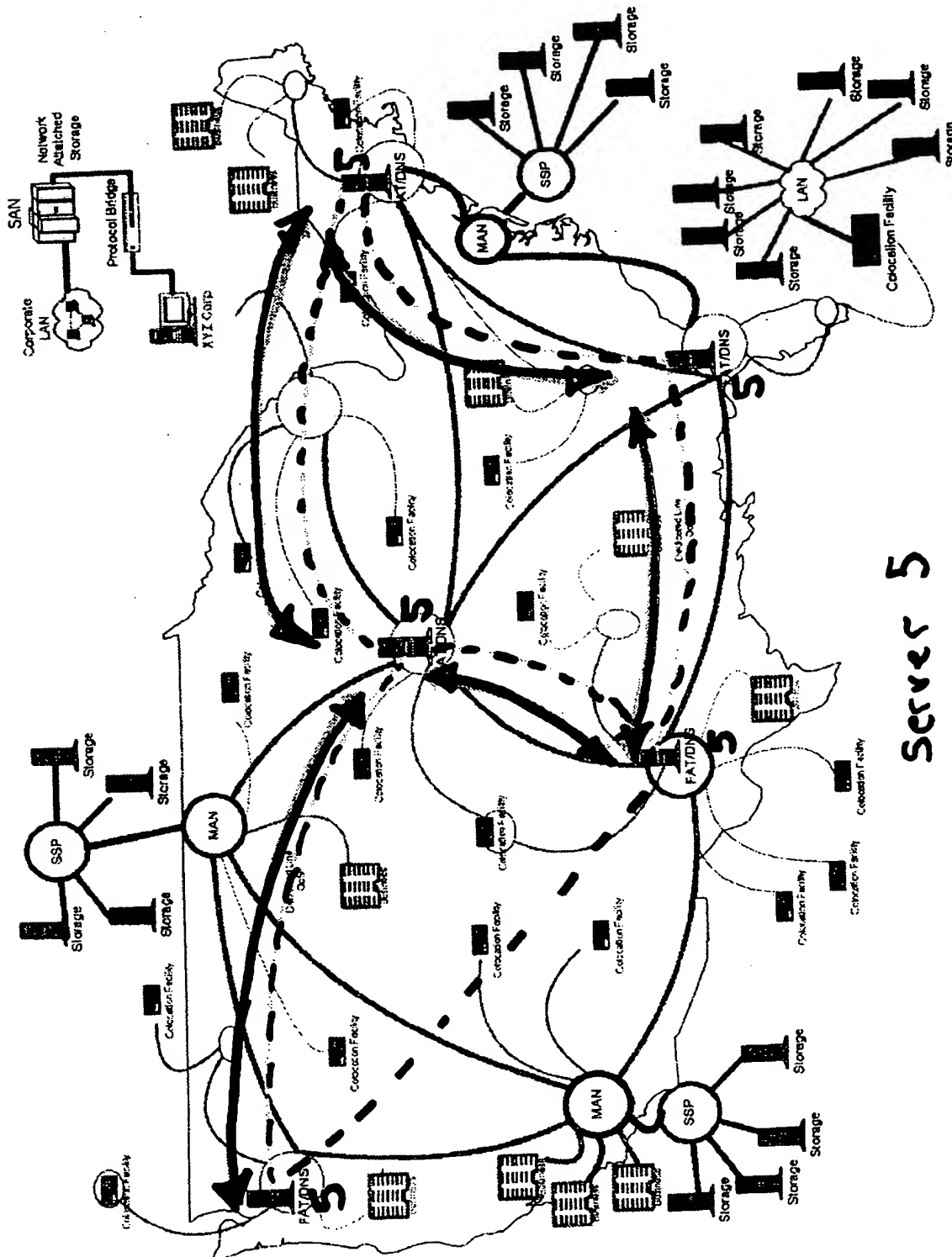
View of Server 110 data, after offload, if stored over the internet

Figure 15a



Server 40 becomes overloaded, and must migrate server 110 data, so server 40 requests storage from server 5. Server 5 allocates storage from the FAT table. After the data has migrated and is validated, Server 5 updates the final fat table for server 110.

Figure 15b



----- = Private Network

Figure 15c

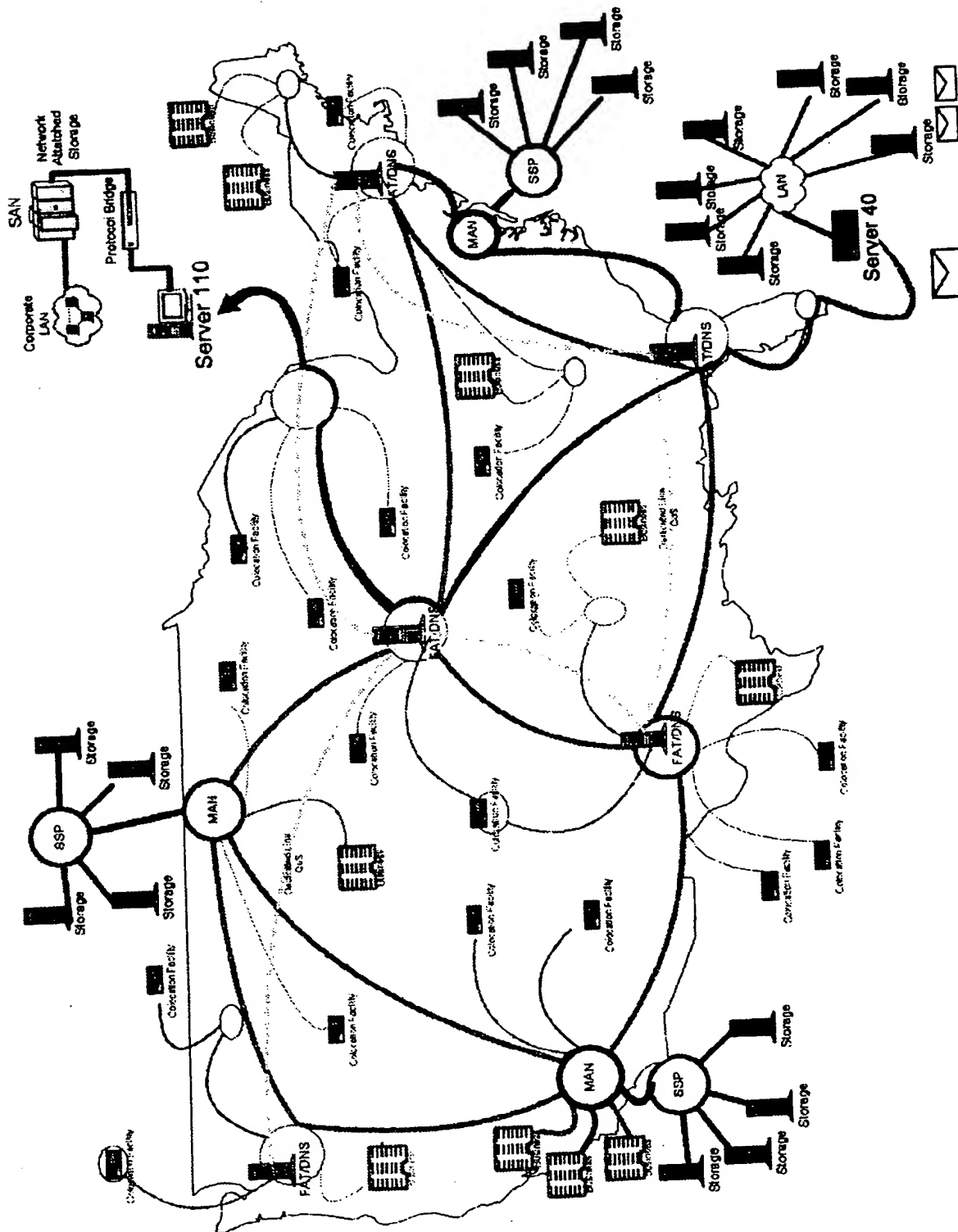


Figure 15d

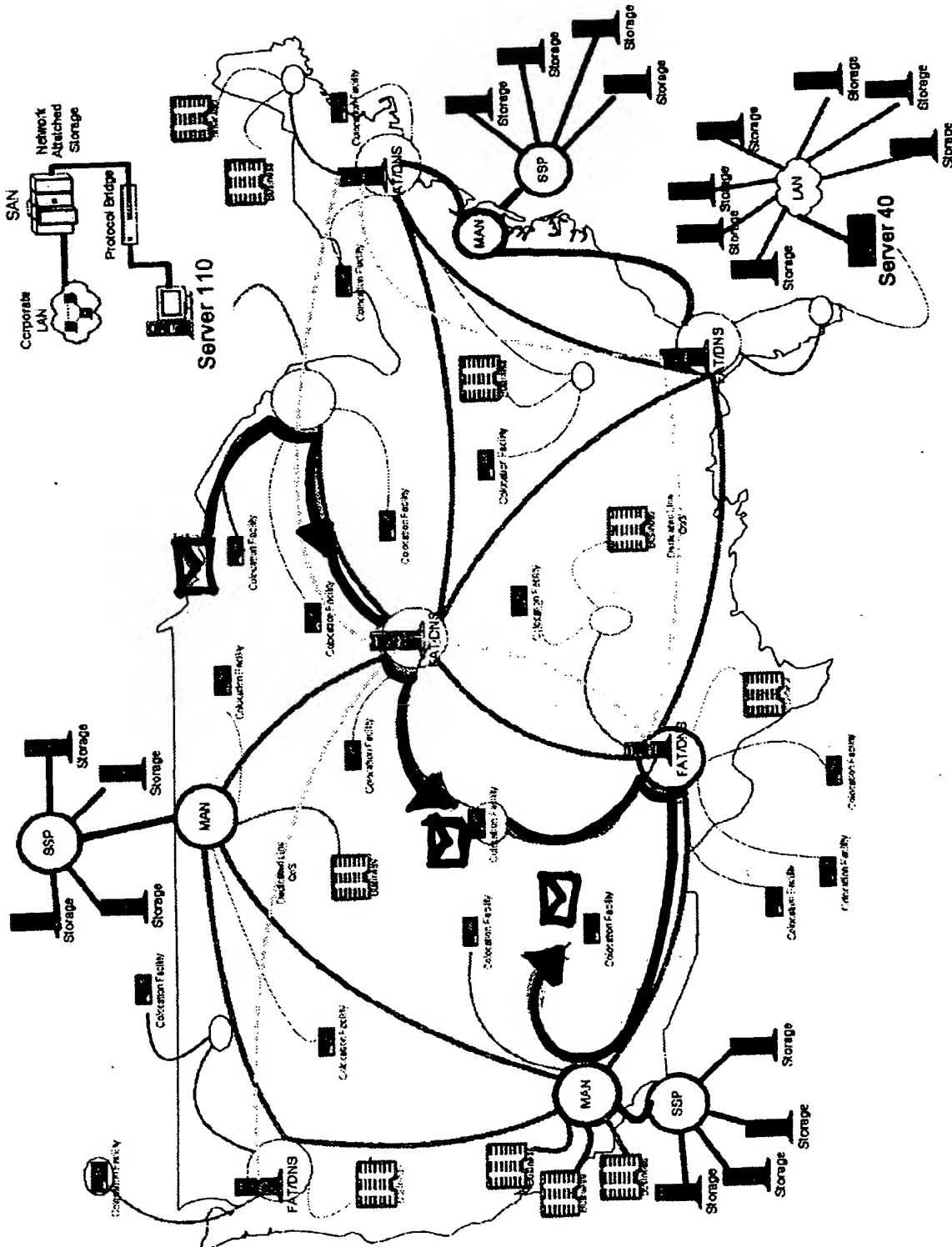


Figure 15e

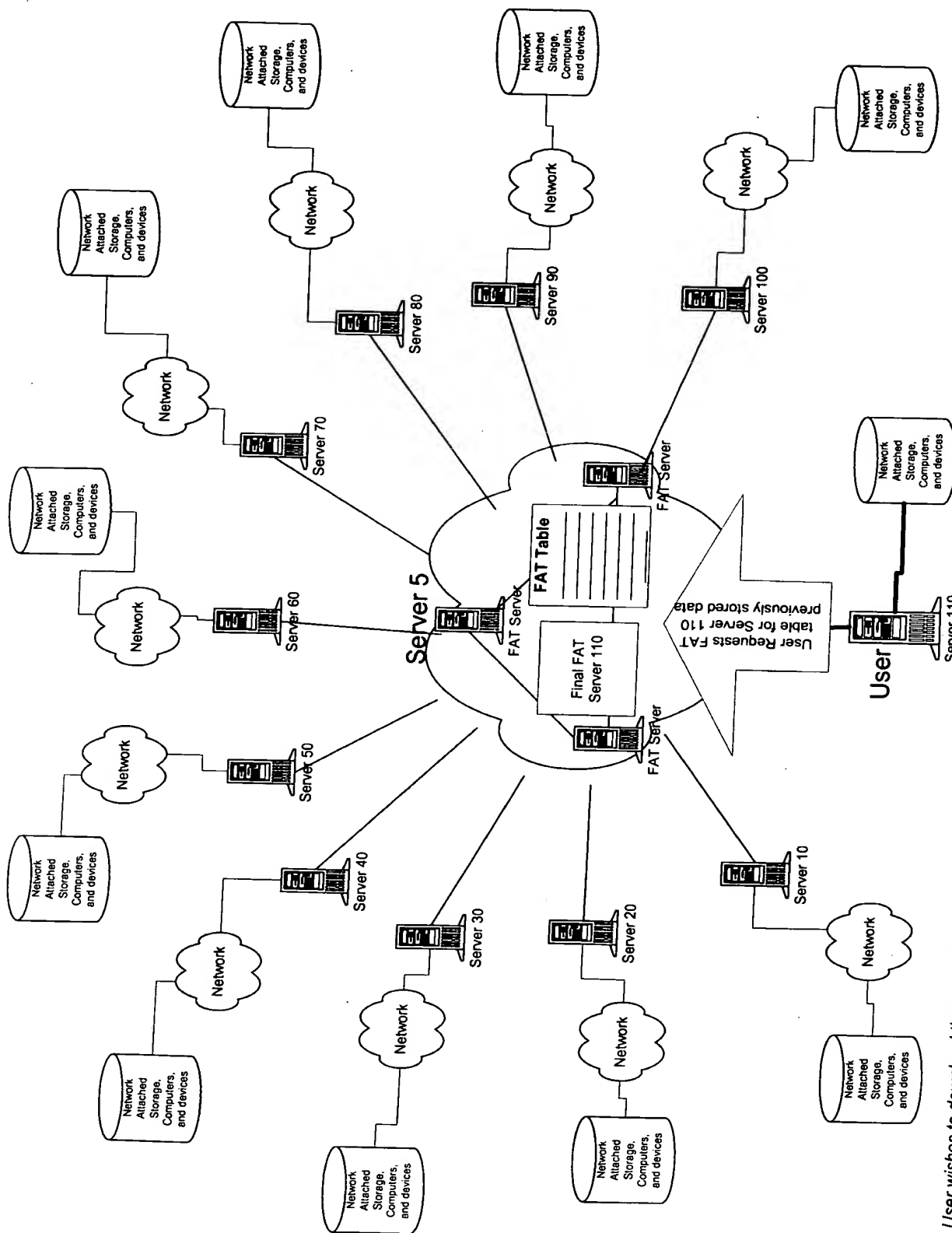
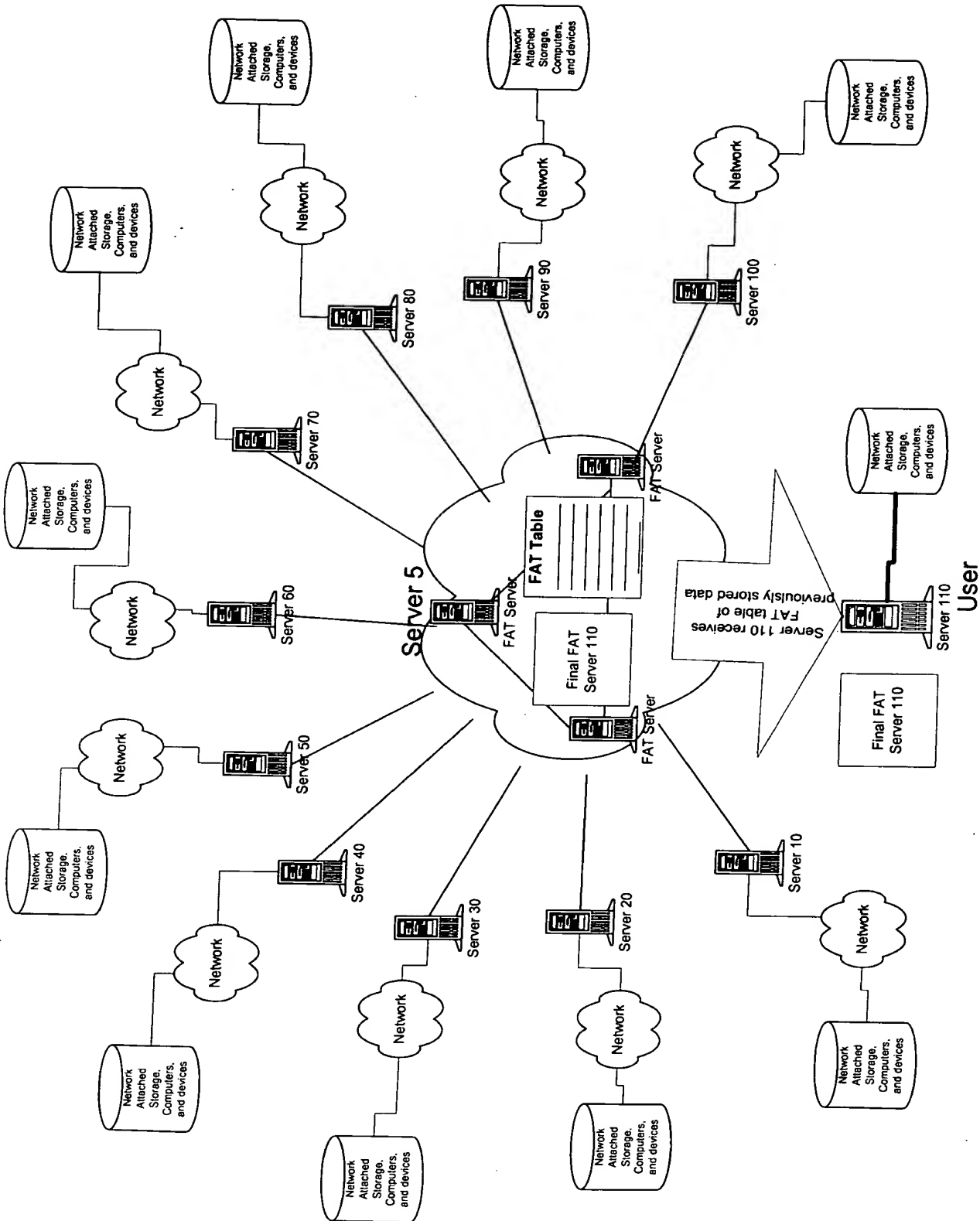
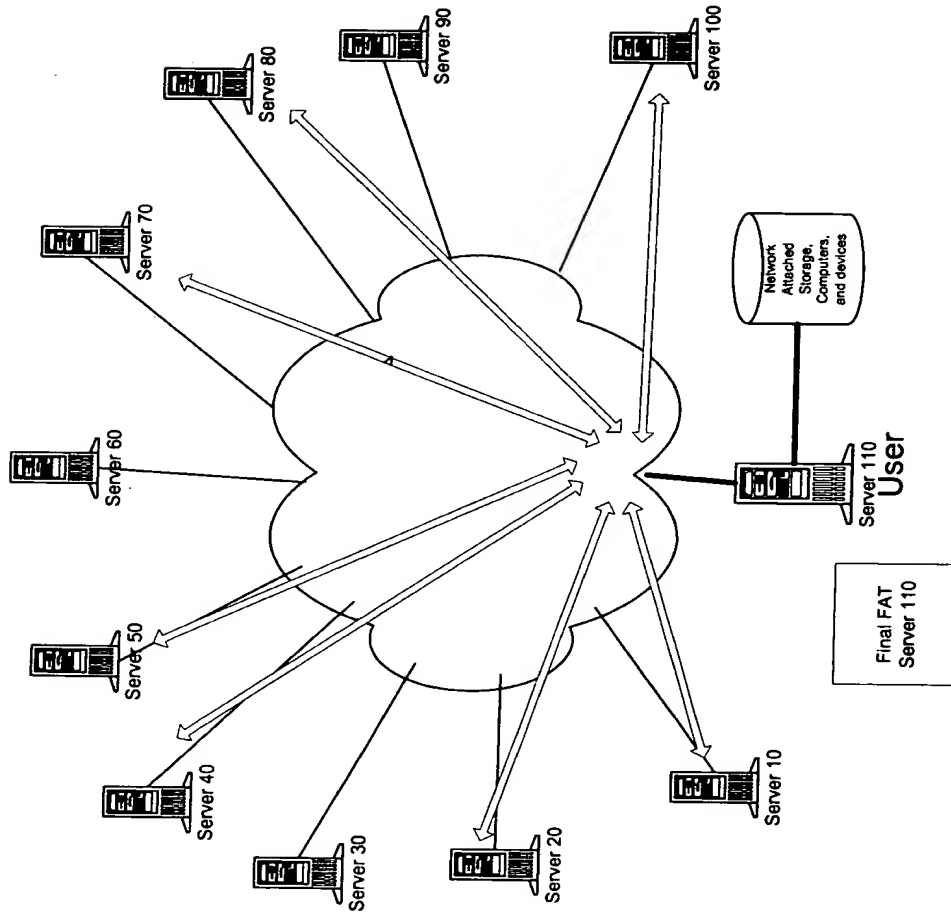


Figure 16





**Figure 17**  
Server 110 Sends for and receives its FAT table for all locations of its data, even the duplicate locations for each data chunk.



The user, Server 110, searches for an optimum path to download the data.

Figure 18

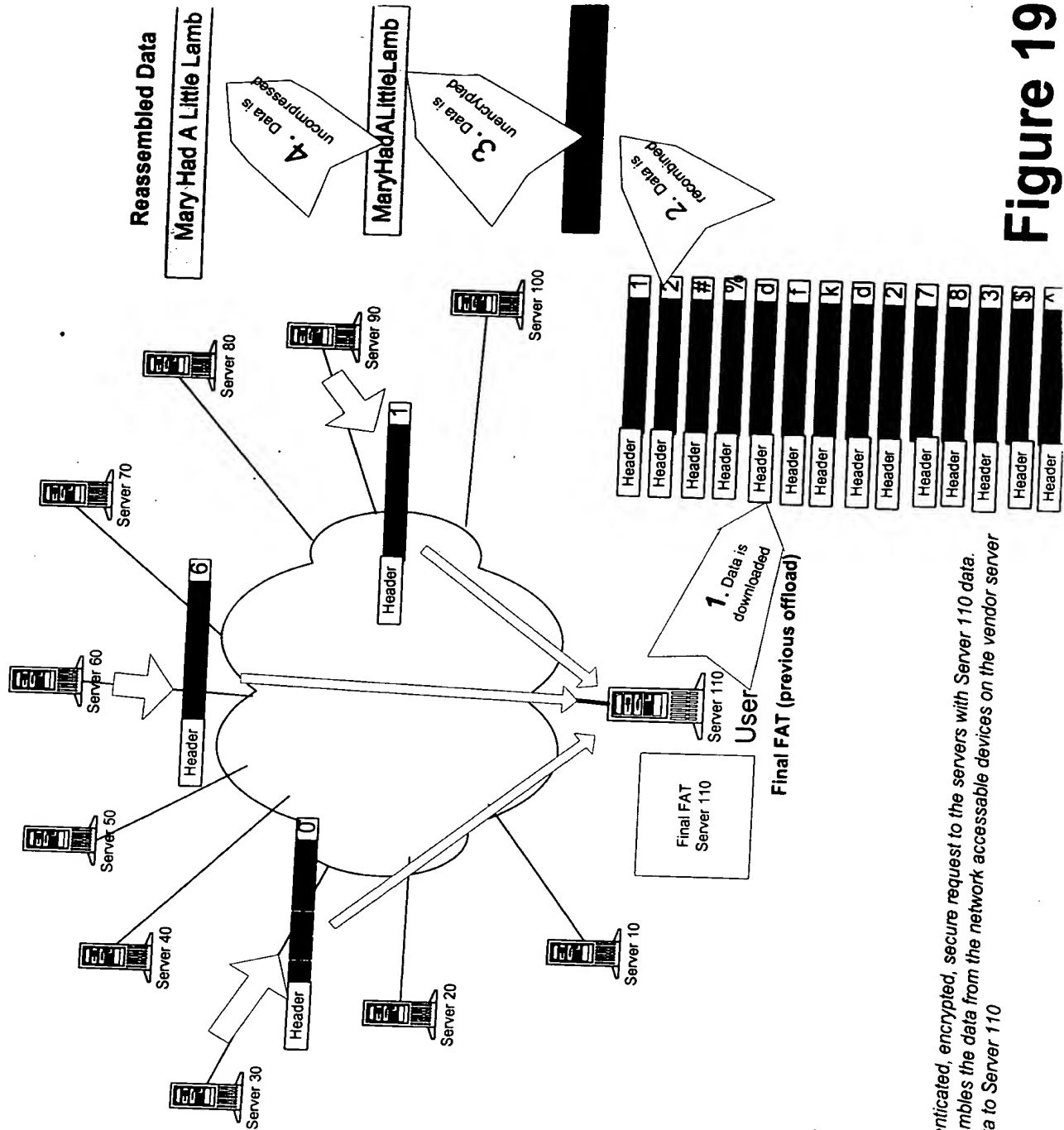
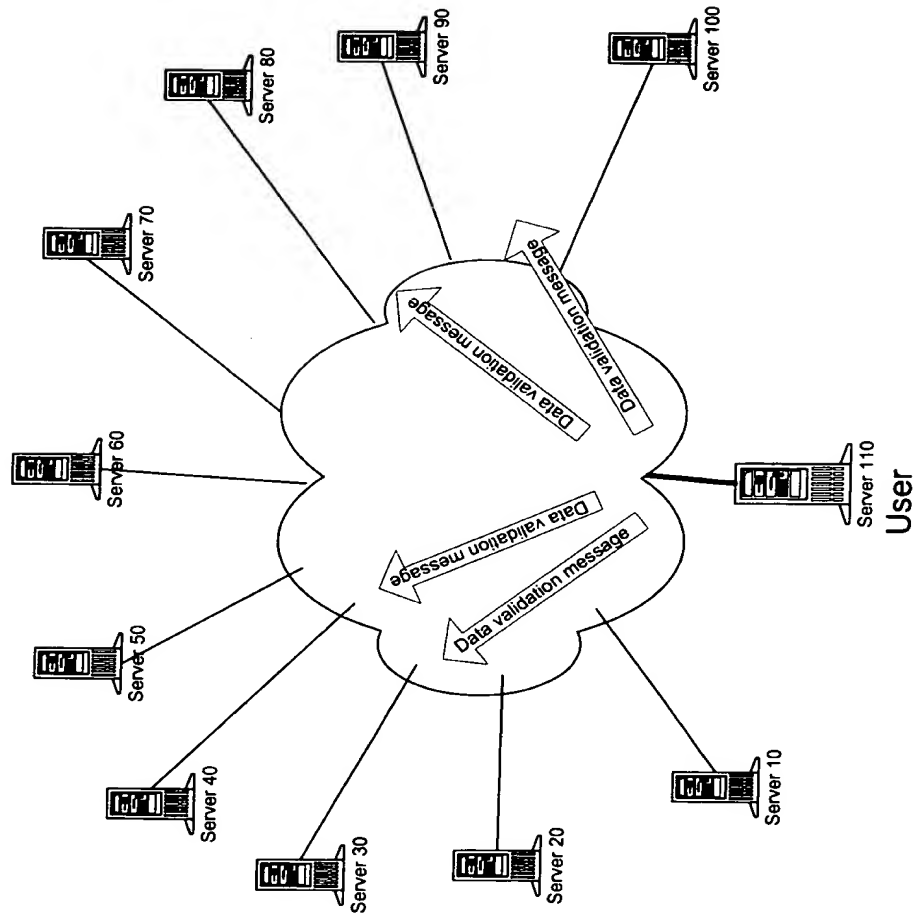


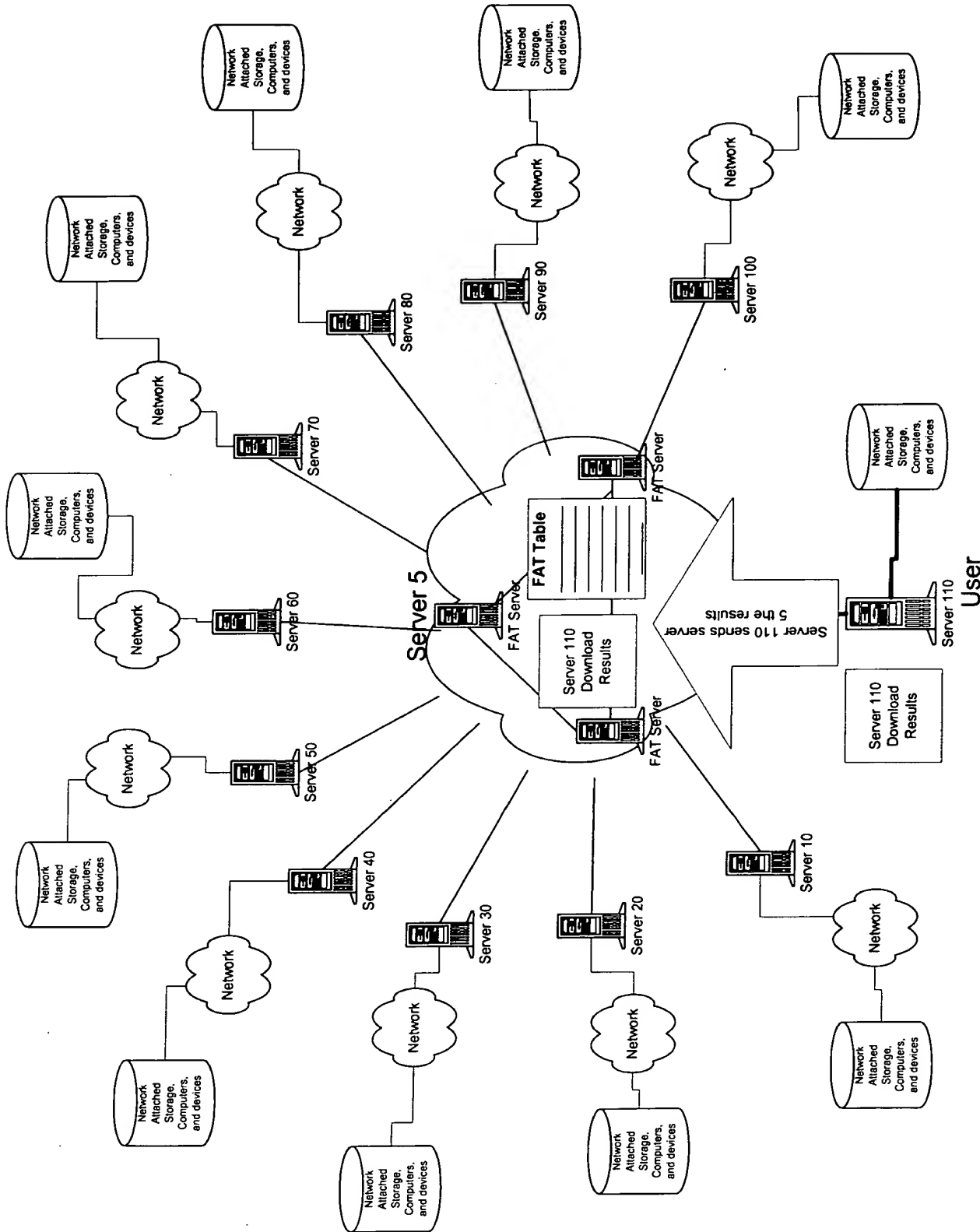
Figure 19

Server 110 sends an authenticated, encrypted, secure request to the servers with Server 110 data. Each vendor server reassembles the data from the network accessible devices on the vendor server network, and sends the data to Server 110

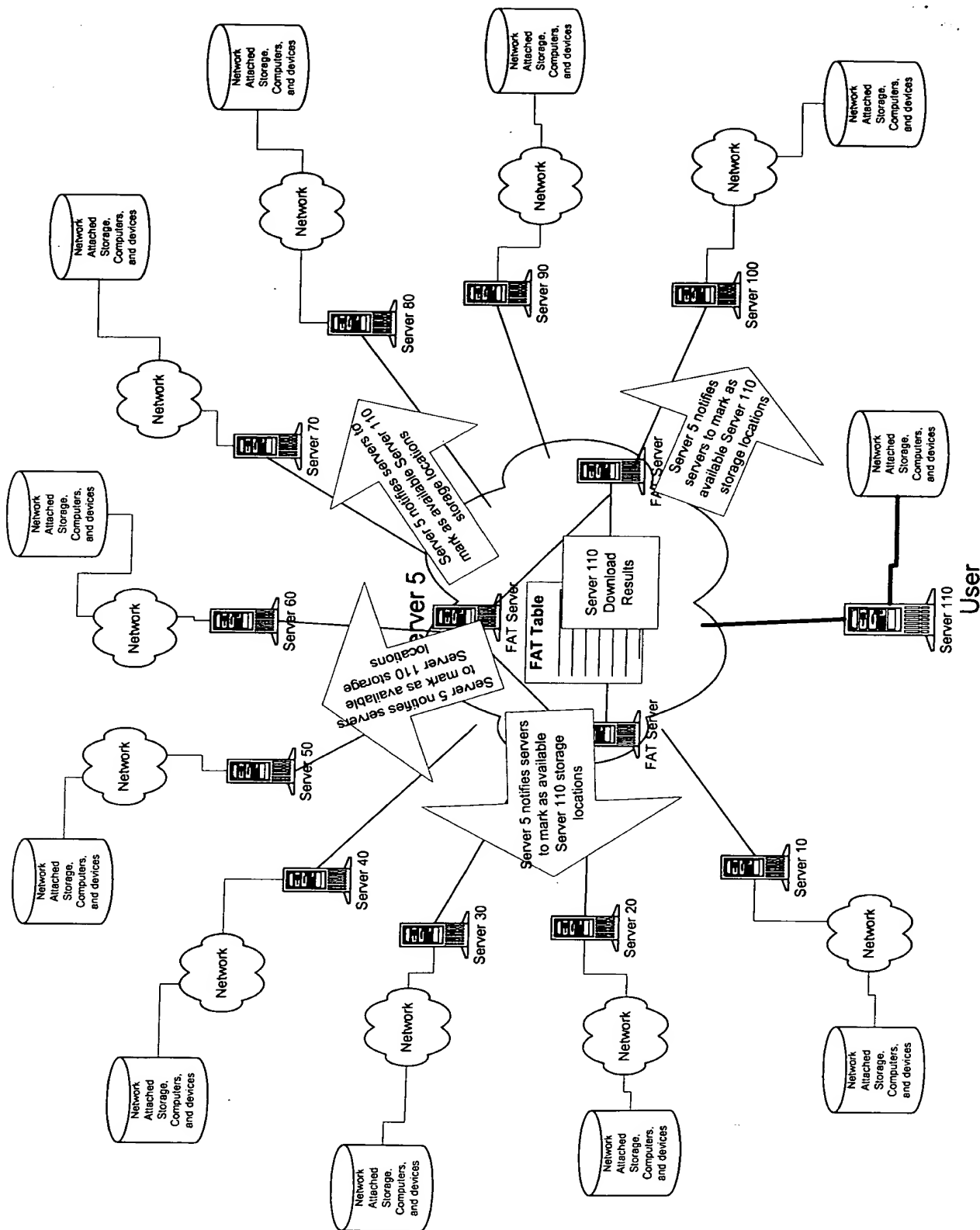


Server 110 sends a data validation message to each of the vendor servers from which it successfully downloaded Server 110 data, confirming that the data was received.

Figure 20



**Figure 21**  
 Server 110 sends Server 5 the results of its download so that server 5 can reallocate the storage resources previously used by server 110.



**Figure 22**

Server 5 notifies the vendor servers that had stored the server 110 data, indicating that the vendor servers can erase the resources previously used by server 110.